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**"SATISFACTORY ENVIRONMENTAL ADAPTATION FOR THE
PHYSICALLY DISABLED IN MAIN GENERAL HOSPITALS OF GAZA
STRIP"**

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Dedication

*To the prophet of mercy "Mohammed" peace be upon him,
To the memory of my father,
To the Palestinian martyrs,
To the Palestinian prisoners,
To the Palestinian disabled,
And to the Palestinian children.*

Abstract

Introduction: The percent of physical disability is significantly high in Gaza Strip due to Israeli aggression against the civilian people, this group of people has been unfairly treated by violation of its civil rights, restriction of its freedom to move around. The Environment adaptability and accessibility to the disabled is vital and important issue in order to have fair life. Hospital buildings are very important places for the disabled, as it is where they have their treatment sessions, medical check ups and follow ups what make it essential and crucial place for them . The objective of this study was to measure the acceptance level of the physically disabled individuals regarding the present environmental adaptation on Gaza Strip main general hospitals, (Al-shifa- Naser and The European).

Methods: Cross-sectional study design was used in order to investigate the opinion of 145 participants who met the inclusion criteria and joined the study, the participants were 67 at Al-shifa hospital, 42 at Naser hospital and 36 at the European hospital , collected data was entered and analyzed using Statistical Package for the Social Sciences (SPSS).

Instrument: Prepared questionnaire had reliability and validity tests was randomly distributed to the disabled who met the inclusion criteria of the study inquiring about their opinions regarding the present environmental adaptations.

Period of study: The study lasted for one month during the working hours(Sunday – Thursday).

Results: The results revealed that percentage of satisfaction about the present environmental adaptations on Al-shifa hospital was 42%, 45% at Nasers hospital and 52% at The European hospital with average of 46% on the three locations , hospital main entrance was the item of highest satisfaction score while the car parking was the item with least score. Generally the study revealed that the disabled opinion regarding the present environmental adaptations on Gaza strip main general hospitals is remarkably low.

Conclusion: The study showed clear disruption on the constructural system which negatively affects the disabled social life. Finally the study recommended urgent Renovation of buildings to meet the disabler's demands.

مدى رضى المعاقين حركياً عن التهيئة البيئية في مستشفيات قطاع غزة الرئيسية. ملخص الدراسة

مقدمة: اعتادت المباني في فلسطين عامة و في قطاع غزة خاصة أن تكون مصممة للأصحاء فقط في تخطيطها دون الأخذ بعين الاعتبار فئة المعاقين و ذوي الاحتياجات الخاصة 'مما يؤثر سلباً في الأداء العام لهذه الفئة في نواحي الحياة المختلفة و زيادة التهميش في النواحي التعليمية والاجتماعية و الصحية و الخدماتية منها.

تشير الإحصائيات إلى ارتفاع نسبة الإعاقة في فلسطين عامة ولا سيما قطاع غزة حيث تصل الى 3% في بعض المناطق و تعتبر نسبة الإعاقة الحركية هي الأعلى من بين الأنواع المختلفة للإعاقة. مما لا شك فيه إن القطاع الصحي يمثل جزءاً أساسياً في حياة هذه الفئة من المعاقين لما تحتاجه من احتياجات طبية و فحوصات و علاجات و الذي يجعل من الأماكن الصحية مكان مهم و دائم الارتياح. إن هذه الدراسة تبحث عن مدى مواءمة مباني مستشفيات قطاع غزة الرئيسية للمعاقين حركياً و مدى رضى المعاقين عن هذه التهيئة من حيث التناغم مع المعايير والأسس التخطيطية حسب القياسات العالمية.

وسائل الدراسة: استخدم الباحث الدراسة الوصفية التحليلية التقاطعية على عينة مكونة من 145 معاقاً حركياً (67 في مستشفى الشفاء - 42 في مستشفى ناصر و 36 في المستشفى الأوروبي) و هم حصيلة شهر كامل استغرقته الدراسة في سؤال كل المعاقين الذين تردوا على المستشفيات المعنية مع مراعاة شروط المشاركة باستخدام استبيان تم تجهيزه خصيصاً للدراسة من الباحث و تم تعبئته عن طريق مقابلات وجها لوجه و قد تم توجيهه لمجتمع الدراسة لمعرفة آرائهم عن مدى التهيئة البيئية الحالية في مباني المستشفيات. تم إدخال و تحليل البيانات المجمعة باستخدام الحزمة الإحصائية للعلوم الاجتماعية (أس بي أس أس).

نتائج الدراسة: من خلال نتائج البحث تبين أن هناك خلل و تفاوت واضح في المعايير الهندسية التصميمية المعمارية في مباني المستشفيات حيث أن معدل رضى المعاقين حركياً عن التهيئة البيئية في المستشفيات الثلاثة كان 46% فكان مدى الرضى عن التهيئة البيئية في مستشفى الشفاء 42% و في مستشفى ناصر 45% و مستشفى غزة الأوروبي 52%.

الخلاصة: هذه النتيجة تؤكد أنه من الضروري العمل على إعادة تأهيل هذه المباني و الأخذ بعين الاعتبار تصميم المباني الجديدة لتتناسب مع حركة المعاقين مما يساعد و يساهم المعاقين في تعزيز مبدأ مساواة الفرص و في النهاية توفير المساواة في المجال الاجتماعي.

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List of Abbreviations

ADA	American Disability Association
ADAAG	American with Disability Act Guidelines
ADL	Activities Of Daily Living
ATBCB	Architectural and Transportation Barriers Compliance Board
CAPE	Clifton Assessment Procedure for Elderly
CHEC	Community Health Evaluation Checklist
CI	Confidence Interval
DDA	Disability Discrimination Act
EC	European Community
EGH	European Gaza Hospital
HA	Housing Adaptations
IMT	International Management Team
LTG	Long Term Goal
MoH	Ministry of Health
MS	Multiple Sclerosis
NHISD	National Health Interview Survey Disability
NSAIDs	Non Steroidal Anti Inflammatory Drugs
OR	Odds Ratio
PCBS	Palestinians central of Bureau of statistics
PDSS	Physical Disability Stress Scale
PNA	Palestinian National Authority
QOL	Quality of Life
SCI	Spinal Cord Injury
SPSS	Statistical Package for Social Sciences
SRH	Self Related Health
UK	United Kingdome
US	United States
UNRWA	United Nations Relief and Works Agency
WHO	World Health Organization

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Chapter one

BACKGROUND

Chapter 1

Introduction

Introduction:

The problem of disability and the disabled is so special due to the unusual circumstances that the Palestinian people are living under. The percentage of disability considered one of the highest percentages as it may reach up to 3% from the total Palestinian population. (Palestinian central bureau of statistics, 2007)

And this is due to the difficult situation and conflicts the Palestinian people going through is a result of the Israeli occupation. The 1997 uprising which lasted for 7 years and El aqsa uprising which began in 2000 up to date are major reasons for the increase of disability percentage among the Palestinians is direct result of the Israelis aggression against the Palestinian civilians.

Additionally, to other factors may also contribute to disability, such as hereditary diseases, early marriage, relative marriage, road traffic accidents and torture....etc.

The health sector in Gaza strip faces several challenges and one of them is the rapid increase in population which leads to crowdedness on the health centers and clinics.

Also the small size of the hospitals and health institutions compared to the standard criteria for hospital building due to the severe lack of land.

At the time that plenty of efforts are directed to build new rehabilitation centers as well as changing the old health buildings in order to meet the standard architectural criteria for all people comes up other priorities, such as increasing the number of beds, staff members. etc. this will delay the idea of renovating the present buildings and making them more accessible to the disable clients.

The Palestinian community in particular has specialty when it comes to the percentage of disability, as it is obviously higher than the standard percentage due to the present situation and the political conflicts. Adding to this, the bad economic situation on Gaza strip due to the closure and siege, which led to marked increase in unemployment and poverty numbers. The poverty average between children under 18 year is 88.2% in the year 2003. (PCBS, 2007).

This situation surely affects the disabled, as it is well known that they are the weakest group in the Palestinian community, although they are usually exposed to such crises.

Gaza strip is located at the southwestern part of Palestine with a total area of 360km² with a total population of 1,416,539 on July 2007 (PCBS, 2007)

The above mentioned data shows how much care should be given to this group of people by helping them to have normal life through the integration to all fields of the society especially the health sector. This requires proper healthy buildings and facilities adaptation to suit the disablers.

The protection of disabled law no. (4) was issued in 1999 stated on Article (2) that "The disabled have the right to enjoy free respectful life and the different services the same as any normal person has rights and obligations with respect to his residual abilities. No reason prevents the disabled to get these rights and this achieved by coordinating the matter between the concerned parties and the Ministry of local Government which will force the Governmental parties to consider the standards of

architectural and engineering criteria in all new public buildings to suit the disabled people."

The Palestinian community took brave and promising step when issued the law .

But according to the Mezan Center For Human Rights which organized a workshop under the title "The Palestinian disabled...urgent needs" on the year 2002 reported that the law doesn't make turning point in the disabled life. But it's the time to reassess the present situation for better future and to evaluate the Palestinian experiment more deeply in this field.

From all this comes up the research problem which will assess how adapted are the hospital buildings in Gaza strip to suit the disabled people generally and the physically disabled especially; also how to cope with this requirements in such difficult circumstances the health sector suffers.

1.1. Justification of the study:

- Physically disabled opinions are very important to assess how the hospital buildings are adapted to suit their environmental needs.
- The rapid increase in disability percentage makes it necessary to have a close look at their problems, needs and barriers.
- In Palestine, there is severe lack of studies covering the environmental adaptation of the disabled individuals.
- The study may document the present architectural assessment to Gaza strip main general hospital buildings.
- To direct the architects to consider the right and needs of accessibility to the disabled.
- To measure the effects on the use of these hospitals by the physically disabled.

1.2. Research Questions:

1- How much the hospitals are architecturally adapted for the physically disabled individuals?

2- Are there significant difference on the level of acceptance to the present hospitals adaptations in the studied hospitals?

3- Are there any significant relationship between the level of acceptance and any of the demographic variables including gender, age, sex, type of disability and age of disability?

4- Are there significant differences on the level of acceptance regarding different measured areas such as floor, entrance, baths, stairs, ramps, elevator, corridor, and all the assessed aspects?

1.3. Significance of the study:

The significance of the study may be related to many factors such as:

- 1- The percentage of physical disability may reach up to 3% and more according to some of the concerned Societies. It makes it necessary to think of this population and to try to minimize barriers and obstacles in order to help them to get better quality of life.
- 2- General hospitals are part of the community where disabled individuals are regular customers. It is necessary to encourage them for regular medical attention and regular follow up, which lead to healthier situations with maximum prevention of any possible complications.
- 3- It is important to pay attention to hospital buildings in Gaza Strip in order to adjust to the increased number of the disabled persons.
- 4- On the other hand, there is a need for the disabled to integrate with hospital buildings and environment, which are easily accessible.
- 5- It is important to know the areas represent the main barriers and obstacles for the physically disabled individuals.
- 6- Provides information and data for all interested people.
- 7- The study may provide guidelines for other researchers to conduct future studies related to this field.
- 8- This may contribute at increasing the body knowledge in Palestine environment.
- 9- There is a lack of research in this particular field.
- 10- Finally, it also provides recommendations to policy makers and professionals to consider and follow the standard criteria for designing public buildings free of barriers.

1.4. General objective:

The main objective of the study was to measure the acceptance level among the physically disabled individuals regarding the present environmental adaptations at Al Ashifa Medical Complex, Naser Medical Complex and the European Gaza hospital with respect to the demographic domains and comparing between the 3 hospitals. Also to focus on certain areas which high priority and concern for the disabled.

1.5. Specific objectives:

- To determine the types of environmental barriers in main general hospitals in Gaza Strip.
- To provide an outline for the treatment of these barriers.
- To measure level of the satisfactory environmental adaptations in the hospital buildings for the physically disabled using these hospitals.
- To compare between the 3 studied hospitals.
- To develop a model for increasing the interaction between the physically disabled and hospitals buildings in Gaza Strip.

1.6. Limitations of the study:

- Lack of related local researches.
- Lack of related text's and references.
- Disable participant's unawareness of environmental adaptations.
- Lack of general awareness about environmental adaptations.

1.7. Operational definitions of terms:

The researcher used the theoretical definitions as operational definitions.

Environment:

It is every thing surrounds us that affects all lives on the earth such as Water, Air, Earth, Climate, and Lives. Could be prescribed as group of networks or systems work together in such a complicated way. Either positively or negatively affects our survival in this small world and we regularly deal with it (Sullivan, 1995)

Environmental Adaptation:

Modifications in constructural features that help a disabled person to cope with his environment, these modifications includes floor , corridors , stairs , doors , bathrooms , ...etc (Kotte, 1990)

Environmental Accessibility:

Absence or removal of physical barriers from the entrance and from the building to allow use by individuals with different physical disabilities (Delisa, 1993)

Environmental Barrier:

Any component of building structure that prevents use of facility or service by individuals with different physical disabilities. (Frieden, 1980)

Disability:

is a condition or function judged to be significantly impaired relative to the usual standard of an individual of their group.

Physically Disabled:

The group of people which have physical restrictions in access to normal environment without structural adaptation due to particular disease or syndrome. (Blakiston, 1984)

Horizontal accessibility:

Include Corridors and paths.

Vertical accessibility:

Include Elevators and Stairs.

Entrance:

Something that provides access (to get in or get out)

Garden:

A plot of ground where plants are cultivated

Corridor:

an enclosed passageway; rooms usually open onto it

Toilet:

a plumbing fixture for defecation and urination

Door:

Swinging or sliding barrier that will close the entrance to a room or building or vehicle.

General hospitals

A general hospital is typically the major health care facility in its region, with large numbers of beds for intensive care and long-term care; and specialized facilities for surgery, plastic surgery, childbirth, bioassay laboratories, and so forth. Larger cities may have many different hospitals of varying sizes and facilities. (wikipedia , 2008).

AL-Shifa Medical Complex:

Is the biggest and oldest medical institution in the Palestinian Ministry of Health located in Gaza city that considers secondary health care delivery system and provides some tertiary care services.

Naser Medical Complex:

The second biggest medical institution in the Palestinian Ministry of Health located in Khanyounes city that is considered secondary health care delivery system and provides some tertiary care services.

European Gaza hospital :

The third biggest medical institution in the Palestinian Ministry of Health located in Rafah city that is considered secondary health care delivery system and provides some tertiary care services.

1.8. Context of the study:

The study was conducted in Gaza in Palestine , therefore the researcher presents some background information about the geographical context, Palestinian population, disability population, In addition to some of information about the 3 studied hospitals (Al-Shifa , Naser , European)

1.8.1. Geographical context:

Palestine is located in the western area on the eastern coast of the Mediterranean Sea. Its bordered by Lebanon in north, in the east by Syria and Jordan, in the south by the Gulf of Aqaba and in the west Egypt and the Mediterranean Sea.

"Palestine oblong shape, measuring from north to south some 430 km. Its width varies from 51 to 70 km in the north and from 72 to 95km in the middle. In the south, however, it becomes wider, extending to some 117km. It then narrows again into a triangular shape, the tip of which touches the Red Sea"(MOH,2003).

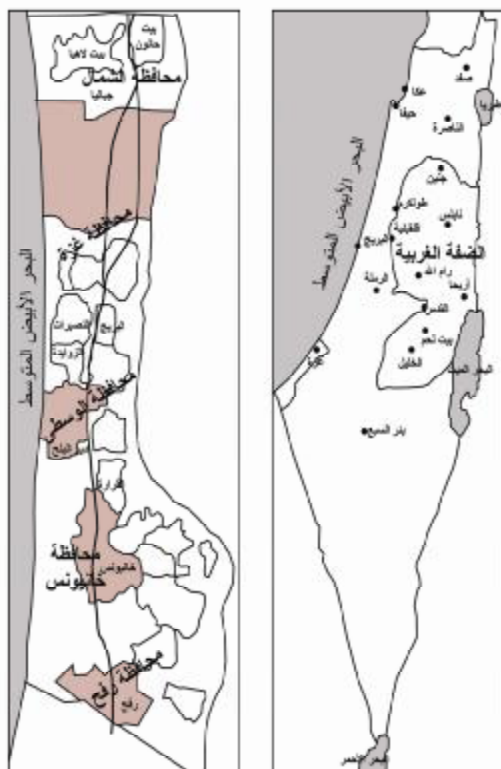
The Palestinian areas account for about 28.00 square miles of the total territory of historical Palestine. Palestine had suffered from several encroachments as result of strategic location like the Ottoman Turkish Empire prior 1917 following the British Mandate period in 1948, there after The Gaza Strip was under the Egyptian administration and the West Bank under the Jordanians and in 1967 Palestine was occupied by the Israelis.

In September 1993, the Palestine Liberation Organization signed a peace Oslo agreement with Israel that promised gradual withdrawal of Israel from the West Bank and the Gaza Strip and this region is called the Palestinian National Authority (PNA) territories and this event occurred after 27 years of occupation.

On may 17, 1994, Palestinians were hopeful that this process would end in Palestine state for them. However, following breakdown of the final status negotiations on the summer of 2000, and on September 2000, Al-Aqsa Intifada began and Israeli aggression had continued since then. Israel has reoccupied nearly all territories, it had ceded to the Palestinians in the West Bank during the Oslo peace process, and continues to build settlements on the Palestinian land.

PNA comprises two regions separated geographically the West Bank and Gaza Strip. West Bank lies between an area of 5,800km west of the Jordanian river. It has been under the Israeli Military Occupation, together with East of Jerusalem since 1967. West Bank is divided into four geographical regions. The north area is consisting of districts of Nablus, Jenin, and Tulkarem.. the center is consisting of Ramallah and

Jerusalem districts, where the south area includes Bethlehem, Al-Khalil districts and the sparsely populated Jordan Valley including Jericho. More than 60% of the population lives in approximately 400 villages and 19 refugee camps, and the remainder in Urban refugee camps and cities of which Nablus and most populous are in Jerusalem and Al-Khalil.(pcbs , 2007).(Annex 1).



The Gaza Strip is a narrow area and situated on the coast of the Mediterranean Sea. Its location on the crossroads from Africa to Asia made it a target for occupiers and conquerors over the centuries. The last of these was Israeli who occupied the Gaza Strip from the Egyptians in 1967. Gaza Strip is a very crowded area with the size of 360km², the concentration of population in cities, small villages and 8 refugee camps that contain two thirds of population, The Gaza Strip is divided into five governorates as follows:

Gaza city, North Gaza, Midzone, Khanyounis, and Rafah (MOH,2007).

Annex 1 Palestine map (Gaza Strip-left).

1.8.2. The Palestinian Population in Palestine:

In the end of 2007, the Palestinian Bureau of Statistics (PCBS) estimated the number of Palestinian population as 3,761,646 million, The distribution of Palestinian population was as follows: 2,345,107 (62.3%) in the West Bank and 1,416,539(37.7%) in the Gaza Strip. The highest rate of population at (14.7%)of the total population in the Hebron governorate followed by the Gaza governorate (13.2%) the third area with (10.9%) is AL Quds governorate, Khanyounis governorate (6.7%), Rafah governorate is (4.1%) finally the lowest rate (1.2%) is Jericho.

The estimated number of males in Palestine at the end of 2007 is 1,908,432 compared to 1,853,214 females. In the west Bank the number of males is 1,189,724 compared to 1,155,383 females. And in Gaza Strip the males are 718,708 and the females are 697,831.(PCBS, 2007).

1.8.3. Persons with disabilities in Palestine:

The estimated number of disabilities all over the Palestinian territories is 2.5% of the total population. In the West Bank is estimated 2.7% and 2.1% in Gaza Strip.

The kinetic disability is estimated 1.2% all over the Palestinian territories; In the West Bank is estimated 1.3% and 1.1% in Gaza Strip. (pcbs , 2007)

1.8.4. The Place of Study:

1.8.4.1. AL-Shifa Medical Complex:

Al-Shifa hospital is the biggest medical institution in the Palestinian MOH. It is considered secondary health care delivery system and provides some tertiary care services for population. It's located in the west part of Gaza .

The hospital was established in 1946 on an area of over 45.000m.sq. and it was developed over the years until now. Many buildings were built like radiotherapy department, burn department, special surgery department, second floor in internal medicine department.

In 2006 the hospital contained 590 hospitalization beds, distributed in internal medicine, general and specific surgeries, burn intensive care, obstetric and gynecology and neonatal department. There were 93 special care beds in the hospital, that included oncology, dialysis, emergency department and other specialized clinics, also a total number of employees 1241.

AL-Shifa hospital is subdivided into 3 hospitals as Surgical hospital, Medical hospital and Obstetric and gynecology hospital beside paramedical services such as Laboratory, Radiotherapy, Pharmacy, and Physiotherapy.

Each hospital has its own administrative team and each manager refer to his general director of hospital(Al-Shifa hospital annual report, 2006)

1.8.4.2. Naser Medical Complex:

The second biggest medical institution in the Palestinian Ministry of Health located in Khanyounes city that considers secondary health care delivery system and provides some tertiary care services. The construction work of Naser Medical Complex began at the year 1958 under the Egyptian Administration on Khanyounis city on area around 40,000m.sq. The service started on 1960 limited with 120 In-patient beds, On 1994 became 240 beds with increase of staff members.

By the end of 2007 the hospital has 17 different medical wards, 950 staff members, 316 hospital beds, 44 daily care beds.

Around 44,000 In- patient, 72,000 Out-patient and 52,000 Daily care patients have utilized from the hospital services (Naser' s hospital administration office)

1.8.4.3. The European Gaza Hospital:

The European Gaza Hospital(EGH) is situated in the southern Gaza Governorate of Khanyounis. EGH is considered one of the biggest investments in the area. With total cost around \$60 Million. The Hospital was conceived by UNRWA and funded by The EC to be a center of excellence providing much needed secondary Plus tertiary care services to Southern Area. The International Management (IMT) Team, took over the responsibility on the 15th of October 2000, The Management Authority was transferred to the local Palestinian staff. The hospital services started on 15th July 2000 according to a scheduled program. The Hospital presents services to a Catchment's population of 500,000, bringing international standards of care to the communities of southern Gaza. EGH played a very important role in Health services Development Process through introducing new systems such as: Appointments System and Computerized Networking System.

EGH is a Ministry of Health Hospital which was built in 1993. The hospital started as 240 Beds general hospital serving the 400,000 catchments population. Today, the EGH provides a major portion of the medical services for the Palestinians through a full range of diagnostic and management facilities for patients ranging in age from the neonate to the elderly. The hospital is the Referral Center for Medical Services.

EGH is considered one of the advanced medical Centers in Palestine. Located In Khanyounis Governorate at the southern border. It's easily accessible to the general population(egh , 2007).

The study was conducted by meeting the participants any where over the three hospital areas such as : Wards, Departments, Clinics, In-patient, Out-patient, Open area, Corridors....etc

Chapter two

Conceptual framework

Chapter 2

First Part: (Theoretical Framework)

Introduction:

The first part of the second chapter deals with the disability in general. It covers the concept of disability types and classifications of disability. The chapter will also cover the developmental history of Disability.

2.1.1. The Concept of Disability:

Disability:

Is a condition or function judged to be significantly impaired relative to the usual standard of an individual abilities of their age group. The term is often used to refer to individual functioning, including physical impairment, sensory impairment, cognitive impairment, intellectual impairment, mental illness, and various types of chronic disease. This usage has been described by some disabled people as being associated with a medical model of disability(Disability , 2008)

The human rights or social model by contrast is presented as focussing on the interaction between a person and their environment, highlighting the role of a society in labelling, causing or maintaining disability within that society, including attitudes or accessibility and favoring the majority. Disabilities may come to people during their life or people may be born disabled.

On December 13, 2006, the United Nations formally agreed on the Convention on the Rights of Persons with Disabilities, the first human rights treaty of the 21st century, to protect and enhance the rights and opportunities of the world's estimated 650 million disabled people.

Countries that sign up to the convention will be required to adopt national laws, and remove old ones, so that persons with disabilities would, for example, have equal rights to education, employment, and cultural life; the right to own and inherit property; not be discriminated all over the life cycle such as; marriage, childhood, etc; not be unwilling subjects in medical experiments

Disability, Impairment and Handicap:

The terms “Impairment”, “Disability”, and “Handicap” are used in place of each other or can be interchanged. They all have different meanings. The different meanings have different impact for understanding the effects of injury. The most common definition is provided by the **WHO (World Health Organization)** which distinguishes between the three terms i.e. disability, impairment and handicap.

Impairment – It is defined as any damage or weakening of physiological, psychological and anatomical function or structure. A child unable to bear weight on the feet and inability to move the legs is impairment. If this condition increases then it

can lead to deformed bone growth and hip dislocation due to imbalanced muscle contraction. Till now, no treatment is available to reduce his impairment.

Disability – Disability is defined as any limitation or inability to perform an activity due to mental or physical disability. A child cannot walk is defined as disability. Special equipment and physical therapy can be used to improve his disability. If he uses a walker with braces then his disability will surely improve. Another example of disability is a four years old child suffers from cerebral palsy which results into tight and stiff legs and he is unable to stand, move and walk, disability is linked with the social restrictions imposed on the individual because of the society.

Handicap – A handicap is a drawback for an individual which results from a disability or impairment and precludes an individual from being normal. A child has cerebral palsy, this is called handicap which became an obstacle for him to perform a normal role in the school, home and in the society. He was able to play with other children and interact with the family members and actively participate in the activities as his level of handicap is very mild. But as he grows old, his handicap also increases and he is unable to walk properly. Appropriate equipments and services reduce the cerebral palsy of the child to some extent.

There was negative connotation between all the terms defined by the World Health Organization.

According to the United Nations Standard Rules: these terms are defined as:-

Disability means that a person can become disabled due to mental illness or medical conditions and intellectual, physical and sensory impairment. Such conditions may be transitory or permanent in nature.

Handicap means that person cannot take active part in the activities of community like others. This term emphasizes on the organized activities of disabled people like communication, information etc and limitations in the environment. These limitations prevent the disabled people to take part with other people.

It is clear that handicap has many (personal, social, economic) consequences on the person, his family and the society. The following are the most common effects on the related parties.

Consequences on individuals:-

- Decrease in dependence
- Inadequate socialization
- Lack of schooling
- Lack of jobs and income
- Isolated and segregated

Consequences on Family:-

- Need for care
- Economic burden
- Social stigma
- Disturbed relationship
- Member who can not participate

Consequences on society:-

- Discrimination within society
- Disturbed social relationship
- Loss of productivity and increase cost of service

2.1.2. Disability Rights:

The primary goal of the disability rights movement is to improve the quality of life of the people suffering from disabilities. This disability rights movement started in 1970s which had taken various steps for the disabled people in the fields such as employment and education. These movements have made the disabled people to take part actively in the mainstream society.

The most popular disability rights legislation formulated in the U.S were the Rehabilitation Act and Americans with Disabilities Act.

The Disability Rights Education and Defense Fund was founded in 1979 which is a policy center formulated to protect and advance the various civil rights of disabled people through technical assistance, advocates, legislation, education and training of attorneys etc.

There are various rights of a disabled person which one can avail in different areas of life such as:-

2.1.2.1. Rights in Employment

The employment rights are the same for every employee including the disabled person but there are special provisions formulated for the disabled person under the **Disability Discrimination Act**. According to this Act, the employers cannot discriminate the disabled people in respect of employment unless it is mentioned in the act. This Act includes job offers, interview arrangements, application forms, terms of employment, dismissal or redundancy and transfer, promotion or training opportunities.

2.1.2.2. Rights in Education

According to the **Special Educational Needs and Disability Act 2001**, the employers cannot discriminate the disabled students, pupils and adult learners from seeking education. It becomes the legal duty of the education providers to give equal status to the disabled people in schools, colleges and universities. The education providers should provide them the necessary aid and make necessary adjustments for the disabled people.

2.1.2.3. Rights in Health

Disabled people should also get the same rights to access the social and health services such as dental surgeries, doctor surgeries and hospital services as the other people. The doctor cannot stop the treatment of the person due to disability. Under the Act, the disabled people will get every facility to avail the health services.

2.1.2.4. Mental Health Rights

If the person is not able to carry out the normal day to day activities due to mental health and has an adverse and long term effect on their ability then they can avail the mental facilities under the Act. The person can suffer from different mental impairment which can be the result of disability such as depression, manic depression, learning disabilities, dementia etc.

2.1.2.5. Rights for Physical Disabilities:

The disabled person should have access to the private and public buildings and general accommodation under the Discrimination Act. They can advocate the use of wide doors, wheelchair ramps, corridors, automatic doors etc and eliminate the steps where elevators and ramps are not available.

The disabled person can access any of these rights as stated under the Disability Discrimination Act (disabilityhelper , 2008)

The general union of the disabled palestinians developed the disabled rights act NO.(4) in 1999:

The researcher finds it important to mention the articles related to the study:

Article 12: The adaptation should meet with the disabled demands which would allow safe, easy, and independent movement on public places.

Article 13: The adaptation is compulsory unless it is :

1- threat to the historical places

2- threat to the place safety

3- cost more than 15% of the total expenses. In case of the three exceptional cases, alternative should be done to adapt the place for the disabled use.

Article 14: Ministries of education and higher education are responsible for the disabled adaptation needs in schools, colleges and universities.

Article 15: The concerned parties and Ministry of local authority coordinate together and demand the owners of both governmental and non governmental places to respect the international architectural and engineering standards on old and new public buildings for the disabled.

Article 16: Ministry of transportation adapts environment to suit the disabled movement on public transportations as well as fees discount for the disabled and escort.

Article 17: Ministry of communications facilitates and adapts all communications facilities to suit all types of disability.

2.1.3. Disability and Handicapped in Islam:

In fact, man's life is a full record of hardships and tribulations. In this sense, Allah says: " We create man from a drop of thickened fluid to test him" (Al-Insaan:2) When man looks upon these tribulations and afflictions as being a test from Almighty Allah to see his true colors, he will come to know that there is a great Divine wisdom behind all these tests. This is surely an absolute fact, whether we know it or not.

It is also a great thing that Almighty Allah, when depriving a person of a certain ability or gift, compensates him for it, by bestowing upon him/her other gift, which he excels others. That is why we see that those people who are deprived of sight, have very sensitive ears that they can hear very low beats or movements around them. They are given excellence in many other abilities to compensate their imperfection.

If a person adopts this view, he will surely find rest and get contented with the test posed on him by Almighty Allah. Every person should bear in mind that he can never change his inability or escape Allah's fate and thus he should try his best to make his

life better and turn this sore lemon into sweet honey. This inability should be a motive to creativity and excellence in any field of life. A disabled person should make his condition an impetus towards being distinguished and prominent in the society.

In order to be an active member in the society, a disabled person needs to be fully aware of his surroundings and the nature of his disability. In addition, it is incumbent on the society to offer a helping hand to all those people. Islamic history has a shining record of many examples of people who, while having some kind of disability, occupied very excellent positions and prominent status in the society. `Atta Ibn Abi Rabah, who was known of being black, lame and paralyzed person, was the greatest Mufti in Makkah. He was highly honored by `Abdul-Malik Ibn Marawan, the Muslim caliph of that time. His vast knowledge earned him this prestige.

Also, we know the story of the great Companion `Amr Ibn Al-Jamoooh, who was also lame. His four sons, when participating in Jihad, said to him: "You have an excuse to remain at home, for you are old and you have a kind of disability." With full confidence and trust in Allah, he said to them: "Nay, for I hope to walk in Paradise with my lame foot." Commenting on this, the Prophet, peace and blessings be upon him, said to them: "Leave him! He is a man who seeks martyrdom." Almighty Allah guides all Muslims not to leave those disabled in isolation lest they fall a prey to despair and psychological ailments. They should be welcomed to the open society and be dealt with in the kindest way. Its orth mentioning that Caliph Omar bin Abdulaziz asked to raise for him all blind and paralysied persons, then he ordered an escort and monthly allowance for each one of them.(ukim.org/imam, 2007)

2.1.4.Duty of the society towards the disabled:

It must be clearly borne in mind that there are things that happen out of man's control and there are things that happen to man out of his own negligence, To make this matter clear, we may quote the following example. An infant gets paralyzed. This may occur due to his mother's negligence of giving her child the due vaccination.

Now, it is the duty of the whole society to establish schools for those persons and secure them due care so that they become good members of the society and that they benefit themselves and their families. In the West, great care is shown to the disabled. It is duty of us Muslims to shoulder the responsibility of showing the utmost care to those people, for example, according to the teachings of our religion, those persons are sources of divine mercy and blessings being showered on us now and then. They are the weak for whose sake we are given sustenance and made victorious. In his Hadith, our Prophet Mohammed, peace and blessings be upon him, said: "You are given sustenance and victory for the virtue of those who are weak amongst you." We, should show mercy and care to the disabled out of both human and religious motives. In Islam, we are commanded to show mercy to everything in this world. In the Hadith: "Show mercy to those on earth so that He Who is in the heavens (i.e. Allah) bestow mercy to you."

2.1.5. Types of Disability:

Under the Disability Discrimination Act 1995 (DDA), a disability is a physical or mental impairment that has a long-term or substantial effect on a person's ability to carry out day to day tasks.

This ranges from people with physical and sensory impairments to people with diabetes, disfigurements, heart disease and epilepsy. Not all of these affect how an individual may access the internet however.

Eyesight:

This includes people with no vision, or some functional vision.... For example, screen readers are used by the blind to read web pages, and someone with poor vision may use screen magnification or adjust their browser settings to make reading more comfortable. This group also includes people with colour blindness and those with eyesight problems related to ageing.

Hearing:

This includes people who are completely deaf or have partial hearing in one or both ears and require the use of a hearing aid.

Mobility:

This refers to a wide range of people with varying types of physical disabilities. With regards to the web it refers largely to people with upper limb mobility, manual dexterity and co-ordination problems. This can be caused through a disability that an individual is born with or one that develops due to illness such as Multiple Sclerosis (MS), Parkinson's or a stroke. People with a broken bone would also temporarily fall into the category.

Cognitive:

Cognitive impairment refers to people with dyslexia and learning difficulties. Dyslexia is a condition where people have difficulties with reading, writing or spelling. Learning problems can range from someone who has a serious mental impairment, or may be due to more common factors as poor literacy, a low level of skill using a computer, having to use the web in a second language, or problems understanding information.(types of disability, 2008).

Causes of Disability:

The causes of disability are divided into three groups such as:

1- Biological factors

2- Genetic or hereditary factors

3- Accidents. There are various types of disability such as physical disability, hearing disability, visual disability, learning disability etc and every disability has different causes.

Medical conditions:

Medical conditions such as muscular dystrophy, arthritis, cerebral palsy, head injury, multiple sclerosis etc.

Accidents :

Some accidents result into various serious conditions such as:-

- Amputation
- Spinal injury
- Brain injury affecting motor control and skills

Causes of Learning Disability:

Most of the learning disabilities are caused by the development of the brain before, during or after the birth. They are:-

Before birth causes:

- The mother having an illness or accident when she was pregnant.
- Developmental abnormalities that happen to the central nervous system.
- Gene's abnormalities which occurs while the unborn baby develops.

During birth causes:

When a baby does not get enough oxygen or is born too early.

After Birth causes:

Physical accidents or early childhood illness.

Causes of Hearing Disability:

The most common causes of hearing disability are:-

Disease or Illness:

Such as, Measles result in auditory nerve damage. Mumps result in profound sensorineural hearing loss and Meningitis leads to auditory nerve damage or cochlea damage.

Physical Trauma:

People with head injury suffer from hearing loss and sometimes there can be damage to the auditory center of the brain and the ear itself.

Genetic:

Both recessive and dominant genes can cause mild and deep hearing disability. Some of the disabilities occurs due to hearing disability are Usher syndrome, Stickler syndrome etc.

Long Term exposure to Environmental Noise:

Exposure to high levels of noise for long term such as people living near airports or freeways can cause permanent hearing disability.

Medications:

Some medications such as macrolide, aspirin and NSAIDs can cause irreversible damage to the ear. ([disabilityhelper](#) , 2008).

Causes of Visual Disabilities:

There are many causes of visual disabilities which are:-

- Eye infections
- Viruses
- Diabetes
- Brain injury
- Stroke
- Viruses
- Accidents
- Glaucoma

2.1.6. The developmental history of disabled rehabilitation:

(Introduction to handicapped, 2007) stated that the developmental history of disabled rehabilitation went through many stages up to date, may be the worst part at the earliest and oldest part. Gradually things started to improve. The following stages briefly describe the sequences of development.

First stage: Which was at the oldest time where the disabled people who have any kind of disability either physical, mental, hearing, vision...etc were collected and thrown out of the country. As the belief was that the disabled person was a burden in wars, victim of devil and presented an evil spirit.

Second stage: Presents the stage of Moral Perspective where a bit of attention given to the disabled from a moral point of view and sympathy and as a right.

Third stage: Presents the issuing of international deceleration such as :-

- 1948 The international declaration of Human Rights
- 1971 The declaration of Mentally Retarded Rights
- 1978 Health For all Conference
- 1981 The Handicap Year
- 1990 The International Conference About Education For All
- 1993The Issuing of The Basis of Equal Opportunity
- 1994 Salamanca Conference " Collective Education"

Second Part: (Physical Disability in Gaza Strip)

Introduction:

This part of the chapter will be specified to discuss the physical disability in Gaza Strip, the concept of environmental adaptation and accessibility to the disablers with theoretical examples to the Community environment, Work environment and Home environment.

2.2.1. The physical Disability in Gaza Strip:

The problem of disability is an old local problem connected to many old diseases and foreign occupations on the Arab area. The problem significantly increased as the conflicts went on with the occupational forces through the use of different fatal weapons types which are internationally prohibited weapons.

These weapons were used against the Palestinian civilians to end up the Palestinian uprising on 1987 up to date. This is what mainly contributed to the huge number of: Martyrs, injuries, prisoners, and disablers most of them are civilians (PCBS, 2002) Physical disability is the most leading and common disability among other disabilities and presents (30.2%) from the total percent followed by (14.6%) of visual disability (PCBS, 2002)

Table 2.1

Palestinian Population with Disability by Type of Disability, Region and Sex(PCBS.2002)

Type of Disability	West Bank				Gaza Strip						
	Male	Female	Both Sexes	Percentage	Male	Female	Both Sexes	Percentage	Male	Female	Percentage
Seeing	2727	1864	4591	15.4	1277	859	2136	13.2	4004	2723	14.6
Hearing	826	783	1609	5.4	442	313	755	4.7	1268	1096	5.1
Speaking	902	689	1591	5.3	598	403	1001	6.2	1500	1092	5.6
Mental	2432	1576	4008	13.4	1617	1038	2655	16.4	4049	2614	14.5
Moving	5713	3356	9069	30.4	2939	1898	4837	29.8	8652	5254	30.2
Hearing & Speaking	985	785	1770	5.9	632	529	1161	7.2	1617	1314	6.4
Mental & Moving	743	543	1286	4.3	506	322	828	5.1	1249	865	4.6
Multiple	1389	1030	2419	8.1	693	544	1237	7.6	2082	1574	7.9
Gripping	825	254	1079	3.6	384	136	520	3.2	1209	390	3.5
Other	1569	858	2427	8.1	716	368	1084	6.7	2285	1226	7.6
Not Stated	-	-	-	-	2	3	5	-	2	3	-
Total	18111	11738	29849	100.0	9806	6413	16219	100.0	27917	18151	100.0

2.2.1.1. Disabled general needs:

1- general:

- Fitness and general needs to maintain and promote general health and wellbeing.
- Psychological support and consultation to adapt to the present situation.
- Education and equal opportunity in education.

2- Social:

- Establish and maintain good relations with the others.
- Support (free education, financial support and free taxes).
- Familial needs by having good relations between the family and the disabled.
- Integration in the community under the umbrella of equal opportunity of education, recreation, and work.

3- Vocational:

- Guidance for early rehabilitation programs.
- Legitimacy by issuing of related disability and laws.
- Offering suitable jobs and skills.

2.2.2. Environmental adaptation and accessibility:

A primary goal of rehabilitation is for the patient to return to a former environment and life-style. In order to achieve this goal, continuity of accessibility must exist among forms of transportation, building entrances, and building interiors.

The value of any of these components is diminished without access to the others. (O'Sullivan, 1995). The researcher believes that Home, workplace and community assessments are the most important aspects in the disabled life which plays a major part in practicing independent, safe and easy life. Therefore the researcher finds it important to have a close look at these aspects.

2.2.2.1. Home Assessment:

Home modification could be defined into two parts:

First is Exterior accessibility which includes:

- **Route of entry** which should be selected closed to the driveway, most level walking surface, least amount of stairs and with handrails. The drive way should be smooth with easy access to the home, well lighted with suitable floor coverage. Stairs condition should be evaluated for safe use, Handrails should be installed if needed and if ramp should be installed, there should be adequate space considering width, length and slope.
- **Entrance** should have platform large enough to allow the patient to rest and prepare for entry. The door lock should be accessible to the disabled, door handle should be turned easily, door should open and close in functional direction, raise threshold in the doorway or at least the threshold to be beveled, wide enough doorway and door, light door weight, and finally kick plate may be added to the doors which mainly used for wheelchair users.

Second is Interior accessibility which includes:

- **Furniture arrangement** sufficient room should be made to allow easy safe movement free of barriers for all disability types.

- **Floors** coverage should be glued for safer movement, assure removal of all rugs.
- **Doors** raised threshold should be removed to provide a flush level surface, widen doorway if needed and using of light weight doors.
- **Stairs** all stairwells should be handrails and should be lighted.
- **Bedroom area** the bed should be stationary and positioned to provide ample space for transfers. Stability maybe improved by placing the bed against a wall or in the corner of the wall, the height of bed surface must be considered to facilitate transfer activities, with firm and comfortable mattress.
- **Bathroom** door should be wide, easy to use, toilet seat should be elevated to facilitate transfer activities, using grab bars which assists in both toilet and tube transfers, a tub seat may be recommended for bathing and a bathmat may be placed on the floor of the tub.
- **Kitchen** the height of counter tops should be appropriate for the wheelchair users, equipments and food storage area should be selected with optimum energy conservation in mind. Finally is a smoke detector and portable fire extinguishers should be available.(uk/knowledge, 2008).

2.2.2.2. Workplace assessment:

The specificity of disable job and the types of the functional activities that will be needed to perform the required tasks are the major principles for workplace adaptation. The principle of energy conservation is primarily important in prevention of injury and maximizing the workers efficiency and comfort. Capabilities should be weighed against the physical demands of the work environment. Workplace also divided into two parts:

First is Exterior accessibility which includes:

- **Parking space** which should be available within a short distance of the building, the location should be clearly marked as handicapped parking area. Also considering the guidelines were mentioned earlier in the home assessment part about route of entry and entrance.

Second is Interior accessibility which includes:

- **Mobility** considering movements within and outside the work area also skills required in each of the following areas(strength, posture, endurance, manual dexterity, eye-hand coordination, vision, hearing, and coordination). Also access to public telephones, drinking fountains and bathrooms. (independentliving, 2008).

2.2.2.3. Community assessment:

To attain the goal of full accessibility for the disabled, the availability of community resources, services, and facilities should be done. Two important areas that warrant attention when modifying community resources are the availability of appropriate transportation and accessibility of social, religious, educational, cultural, and shopping facilities areas.

- **Transportations** there are many factors could decide what types of modifications are needed (severity, type, and level of disability and so forth). Motor vehicle adaptations are selected based on the physical capabilities of the individual. Adaptive equipments could be used hand controls, steering wheel attachments, (knops and cuffs), lifting units and self contained lifting platforms.

- **Access to community facilities** these areas facilities should be modified from parking areas, beveled curbs, internal and external accessibilities of the building, public telephones, drinking fountains, bathroom and restaurants, theaters, lecture halls, seating areas, stores, shopping areas and emergency exits.(pubmedcentral,2008)

Third Part: (Designing criteria of public buildings for peoples with special needs)

2.3.1 Introduction:

Through the present development of human rights which lately had included peoples with special needs and considered them humans with value on the society. This is what opened the all doors to the disabled person to get most of their rights inside the society which will enhance the idea of equal opportunity. This is what made all professionals to work hardly to adapt science and technology using all possible facilities in order to provide and facilitate services. This is what will adapt the surrounding environment either the out-door environment or the in-door environment to suit their lives including all aspects of ADL with maximum independency. This section concentrates on adapting the environment for the physically disabled persons, due to the remarkable increase of the rate of this particular disability in comparison to the other disabilities.

Therefore it is so important to work architecturally right to adapt all structures and public buildings from all aspects (functional, environmental .etc.) to meet the demands of all users either normal person or disabled person.

In all areas of a building used by the public, Title II of the ADA requires a totally accessible interior path from point of entry to all public services. The design elements affected by this requirement consist of:

- Vestibule configuration
- Door sizes and pressure of operation
- Corridor widths
- Elevator access and control
- Toilet room and stall dimensions
- Telephone and TTY (text telephone) provisions
- Drinking fountain location and dimensions
- Visual and audible alarm accommodations
- Signage design & location
- Quantity of accessible seating
- Counter heights
- Ramps or lift access to all raised seating (ADA, 2008)

The next part will explain the basic requirements of adapted environment to suit the disabled according to Disabled access regulation

For alteration, repairs & additions.

The architectural elements for any building were divided into two major parts.

1- First is the outer element which includes:

- Car Parking
- Accessible route
- Out-Corridors and Pavements
- Stairs
- Handrails and Grab bars
- Ramps and Curb Ramps
- Floor and Ground surfaces
- Signage
- Telephones

And the second is the inner elements which include:

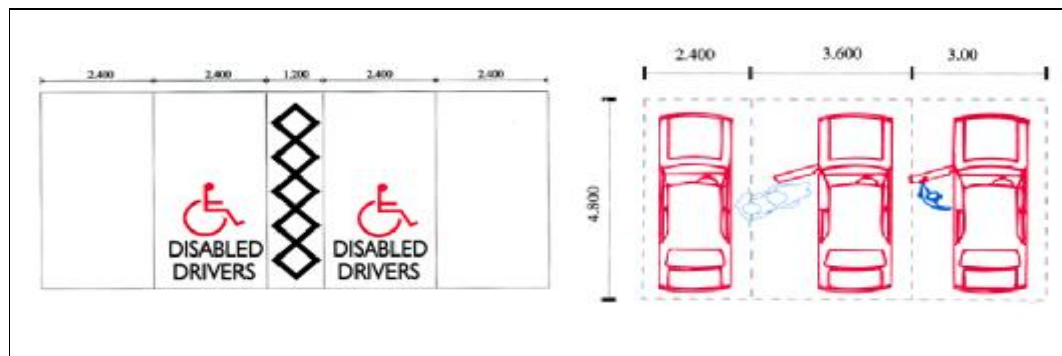
- Entrances
- In-Corridors
- Corridors finishing
- Elevators
- Fixed or built in seating and tables
- Toilets
- Doors

The researcher briefly summarized the basic criteria and guidelines for these elements.

2.3.2. First: The Outer Environment:

2.3.2.1. Car Parking:

- None disabled car parking occupies area of (11.52) m² (4.8x2.4) m.
- The disabled car parking occupies area of (17.28) m² (4.8x3.6) m.
- The disabled car parking should be recognized by color and special disabled signage. See (Figure 2.1)



(Figure 2.1 illustrates the measurement difference between disabled and non-disabled car parking)

2.3.2.2. Accessible Route:

All walks, halls, corridors, aisles, skywalks, tunnels, and other spaces that are part of an accessible route.

(1) At least one accessible route within the boundary of the site shall be provided from public transportation stops, accessible parking, and accessible passenger loading zones, and public streets or sidewalks to the accessible building entrance they serve. The accessible route shall, to the maximum extent feasible, coincide with the route for the general public.

(2) At least one accessible route shall connect accessible buildings, facilities, elements, and spaces that are on the same site.

(3) At least one accessible route shall connect accessible building or facility entrances with all accessible spaces and elements and with all accessible dwelling units within the building or facility.

(4) An accessible route shall connect at least one accessible entrance of each accessible dwelling unit with those exterior and interior spaces and facilities that serve the accessible dwelling unit.

2.3.2.3. Out-corridor and pavement:

- Should be fixed, with none slipping floor coverage.
- Should not be less (1.8) m in width.
- Threshold with not more than (0.03) m.

2.3.2.4. Handrails and Grab Bars:

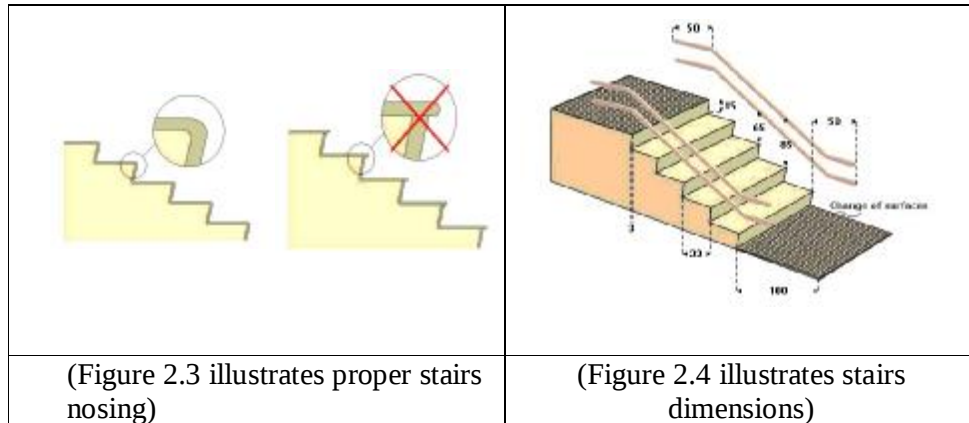
The diameter or width of the gripping surfaces of a handrail or grab bar shall provide an equivalent gripping surface. See (Figure 2.2)



(Figure 2.2 illustrates a view to corridor side rails)

2.3.2.5. Stairs:

- Stairs should be supplied with side rails on both sides.
- Never use stairs with protruded nosing. See (Figure 2.3)
- Provide the rails with handles. See (Figure 2.4)



(Figure 2.3 illustrates proper stairs nosing)

(Figure 2.4 illustrates stairs dimensions)

2.3.2.6. Ramps and Curb Ramps:

Location Curb ramps shall be provided wherever an accessible route crosses a curb.

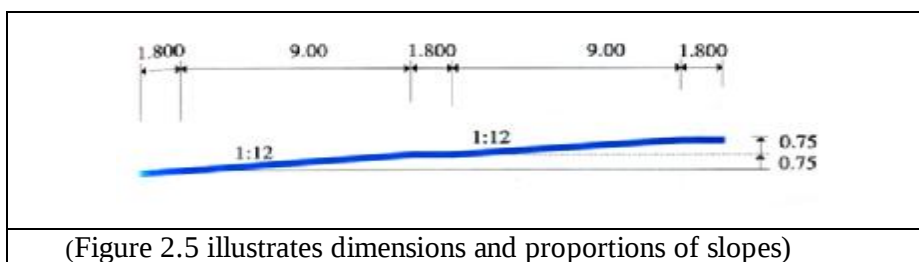
Slope Ramp slopes between 1:16 and 1:20 are preferred. The ability to manage an incline is related to both its slope and its length. Wheelchair users with disabilities affecting their arms or with low stamina have serious difficulty using inclines. Most ambulatory people and most people who use wheelchairs can manage a slope of 1:16. Many people cannot manage a slope of 1:12 for (9 m). Transitions from ramps to walks, gutters, or streets shall be flush and free of abrupt changes. Maximum slopes of adjoining gutters, road surface immediately adjacent to the curb ramp, or accessible route shall not exceed 1:20. See (Figure 2.5)

Landings Ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features: See (Figure 2.6)

- Slope, heights and distance should be considered as: (see table 2.1)

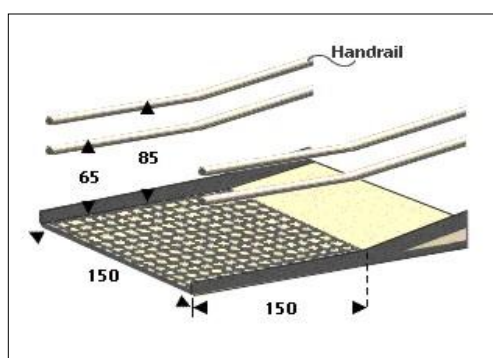
Table 2.2 Ramp measurements

Slope	Maximum height	Maximum distance
1:12	0.75	9
1:16	0.75	12
1:20	0.75	15



(Figure 2.5 illustrates dimensions and proportions of slopes)

- Ramp width should not be less than (0.9)m in private buildings and (1.5)m in public buildings.
 - Ramp surface should be made firm with none slipping material with different color.
 - Should be supplied with side rails on both sides with height of (0.65 , 0.85)
See(Figure 2.6)
- Should be supplied with circular side rail part with diameter of not more than (0.045)m.



(Figure 2.6 illustrates ramps landing measurement)

2.3.2.7. Ground and Floor Surfaces:

Ground and floor surfaces along accessible routes and in accessible rooms and spaces including floors, walks, ramps, stairs, and curb ramps, shall be stable, firm, slip-resistant. See (Figure 2.7)

Carpet If carpet or carpet tile is used on a ground or floor surface, then it shall be securely attached; have a firm cushion, pad, or backing, or no cushion or pad; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture.



(Figure 2.7 illustrates different firm none-slipping Ground and Floor Surfaces)

2.3.2.8. Signage:

Character Proportion Letters and numbers on signs shall have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.

Character Height Characters and numbers on signs shall be sized according to the viewing distance from which they are to be read. See (Figure 2.8)



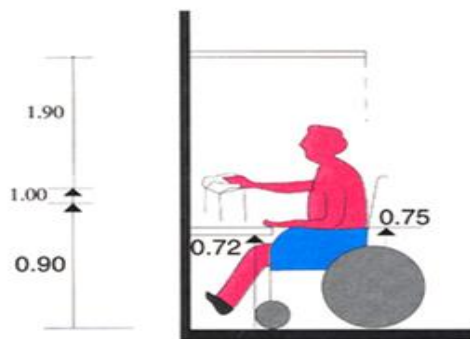
(Figure 2.8 illustrates different guiding Signage samples)

2.3.2.9. Telephones:

Clear Floor or Ground Space A clear floor or ground space to allow either a forward or parallel approach by a person using a wheelchair shall be provided at telephones. Bases, enclosures, and fixed seats shall not impede approaches to telephones by people who use wheelchairs. See (Figure 2.9)

Mounting Height The highest operable part of the telephone shall be within the reach ranges.

- Telephones shall be hearing aid compatible.



(Figure 2.9 illustrates dimensions of Telephones booth)

2.3.3. Second: The Inner Environment:

2.3.3.1. Entrances:

Minimum number of entrances required being accessible. Such entrances shall be connected by an accessible route to public transportation stops, to accessible parking and passenger loading zones, and to public streets or sidewalks if available. They shall also be connected by an accessible route to all accessible spaces or elements within the building or facility.

Service Entrances: A service entrance shall not be the sole accessible entrance unless it is the only entrance to a building or facility (for example, in a factory or garage). See (Figure 2.10)



(Figure 2.10 illustrates modified wheelchair service entrance)

2.3.3.2. In-Corridors:

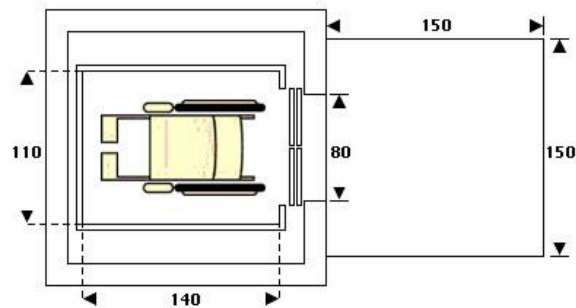
- The inner corridor width should not be less than (1.5) m in public buildings.
- Should not be less than (2.0) m of width for the disabled.

2.3.3.3. Corridors finishing:

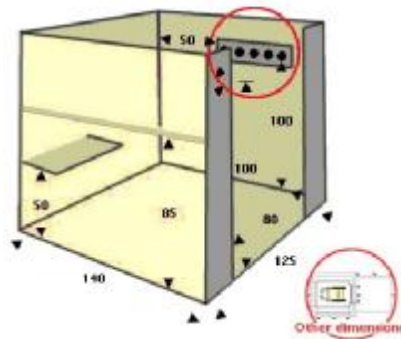
- Doors and windows should be clearly colored to avoid pumping.
- Using wide, clear guiding signage and more preferred the lighting signage.

2.3.3.4. Elevators:

- Average area in front of elevators, which are usually the same as the staircase width (1.3m x 1.3m).
- In accordance with the engineering standards for persons with disabilities, the area that must be provided before the elevator should not be less than (1.5m x 1.5m).
- Minimum requirements for the vehicle lift dimensions for persons with disability are (1.4m x 1.1m) with door width of not less than (0.8m). See (Figure 2.11)
- According to engineering standards in public buildings, the elevator is to accommodate at least eight people and usually with dimensions of not less than (1.6m x 1.6m) with door width of (0.9m).
- The control board with buttons must be horizontally, at a distance of (0.5m). See (Figure 2.12)
- Lightening control buttons should be used which is working by touch with height of not more than (1.0m).



(Figure 2.11 illustrates the minimum dimensions of the elevator car for persons with disability)

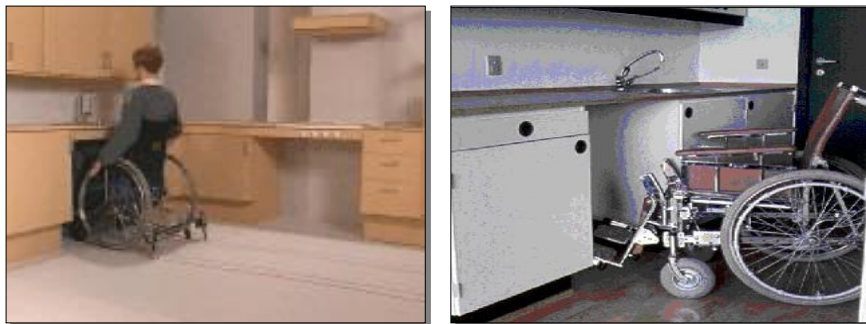


(Figure 2.12 illustrates the dimensions of the control buttons height)

2.3.3.5.Fixed or Built-in Seating and Tables:

Seating If seating spaces for people in wheelchairs are provided at fixed tables or counters, clear floor space shall be provided.

Knee Clearances If seating for people in wheelchairs is provided at tables or counters. See (Figure 2.13)

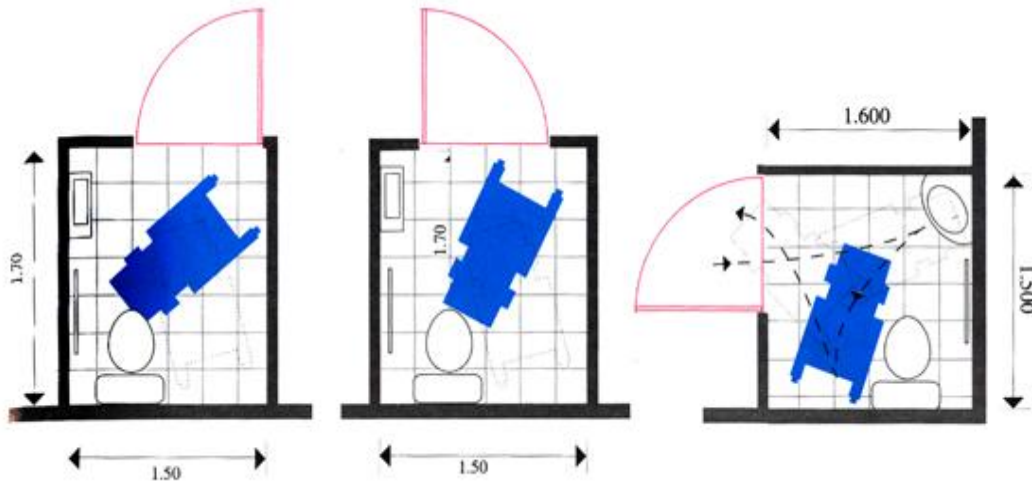


(Figure 2.13 illustrates the knee clearances for wheelchair person)

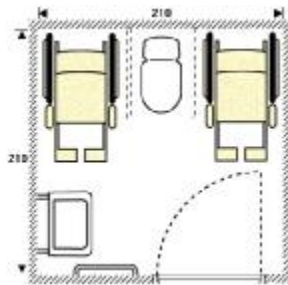
2.3.3.6. Toilets:

- The average space area required for disabled toilets should be (1.7m x 1.5m) and this, in case of the toilet unit door opens to the outside. See (Figure 2.14)

- And (2.1m x 2.1m) in case of the toilet unit door opens to the inside. See (Figure 2.15)



(Figure 2.14 illustrates the dimensions of the toilet when opening the door to the outside)



(Figure 2.15 illustrates the dimensions of the toilet when opening the door to the inside)

2.3.3.7. Doors:

Revolving Doors and Turnstiles Revolving doors or turnstiles shall not be the only means of passage at an accessible entrance or along an accessible route. An accessible gate or door shall be provided adjacent to the turnstile or revolving door and shall be so designed as to facilitate the same use pattern.

Double-Leaf Doorways If doorways have two independently operated door leaves, then at least one leaf shall meet specifications, that leaf shall be an active leaf.

2.3.4. Minimum Requirements:

(1) General. All areas of newly designed or newly constructed buildings and facilities should be modified in a special way to suit disabled peoples.

(2) Application Based on Building Use. Special application sections provide additional requirements based on building use. When a building or facility contains more than one use covered by a special application section, each portion shall comply with the requirements for that use.

(3) Areas Used Only by Employees as Work Areas. Areas that are used only as work areas shall be designed and constructed so that individuals with disabilities can approach, enter, and exit the areas. These guidelines do not require that any areas used only as work areas be constructed to permit maneuvering within the work area or be constructed or equipped (i.e., with racks or shelves) to be accessible.

2.3.5. Medical Care Facilities:

General Medical care facilities included in this section are those in which people receive physical or medical treatment or care and where persons may need assistance in responding to an emergency and where the period of stay may exceed 24 hours.

(1) Hospitals - general purpose hospitals, psychiatric facilities, detoxification facilities - At least 10 percent of patient bedrooms and toilets, and all public use and common use areas are required to be designed and constructed to be accessible.

(2) Hospitals and rehabilitation facilities that specialize in treating conditions that affect mobility, or units within either that specialize in treating conditions that affect mobility - All patient bedrooms and toilets, and all public use and common use areas are required to be designed and constructed to be accessible.

(3) Long term care facilities, nursing homes - At least 50 percent of patient bedrooms and toilets, and all public use and common use areas are required to be designed and constructed to be accessible.

(4) Alterations to patient bedrooms.

(a) When patient bedrooms are being added or altered as part of a planned renovation of an entire wing, a department, or other discrete area of an existing medical facility, a percentage of the patient bedrooms that are being added or altered. The percentage of accessible rooms provided shall be consistent with the percentage of rooms required to be accessible by the applicable requirements of, until the number of accessible patient bedrooms in the facility equals the overall number that would be required if the facility were newly constructed.

(b) Where toilet/bathrooms are part of patient bedrooms which are added or altered and required to be accessible.

Entrances At least one accessible entrance shall be protected from the weather by canopy or roof overhang.

Patient Bedrooms Provide accessible patient bedrooms which comply with the following:

(1) Each bedroom shall have adequate space to provide a maneuvering space. In rooms with two beds, it is preferable that this space be located between beds.

(2) Each bedroom shall have adequate space to provide a minimum clear floor space along each side of the bed and to provide an accessible route to each side of each bed.

Patient Toilet Rooms Where toilet/bathrooms are provided as a part of a patient bedroom, each patient bedroom that is required to be accessible and shall have an accessible toilet/bathroom with an accessible route. ([independentliving,2008](#))

Chapter three

Literature review

Chapter 3

Literature Review

Introduction:

This chapter reviews the previous studies that related to the environmental adaptations and accessibility to public buildings, community places, workplaces, home modifications then studies to investigate the international standards of public building. Also focus on other related studies to the present study such as wheelchair mobility assessment and adaptive equipments and others. There are commentaries on each group in addition to the commentary on the previous study as a whole.

3.1. Studies of Wheelchair accessibility to public buildings:

3.1.1. Wheelchair accessibility of public buildings in Al Ain, United Arab Emirates:

Rivano-Fischer (2004) assessed the accessibility to public buildings for wheelchair users in Al Ain, the fourth largest city of the United Arab Emirates, Data were collected at 17 buildings, randomly chosen using the local telephone book as source. The instrument used was a survey form covering eight accessibility areas: parking, ramps, entrances, accessible routes, toilets, elevators, public telephones and water fountains. The survey comprized 79 items based on the Americans with Disabilities Act Guidelines (ADAAG).

And the result showed that the highest overall compliance scored was 73%, and the lowest was 13%. The highest compliant accessibility area was accessible route with a mean of 76%, and the lowest was parking with a mean of 19%. None of the buildings recorded 100% compliance with the items in the survey form. And the conclusion of the study was that A wheelchair user would have encountered many and difficult architectural barriers if he had visited any of the public sites surveyed in the city of Al Ain. the results of this study show that much has actually been accomplished in the field of wheelchair accessibility of public buildings in the UAE city of Al Ain, despite the absence of legislation.

3.1.2. Wheelchair accessibility of public buildings in the central business district of Harare, Zimbabwe:

Useh et al.(2001) evaluated the accessibility of wheelchairs into public buildings in the central business district of Harare, Zimbabwe and to identify architectural barriers faced by wheelchair users in public buildings. This was a descriptive study of 20 public buildings in the Harare business district of Zimbabwe. Wheelchair accessibility was determined on a point scale based on specifications provided. Descriptive statistics of simple percentages and means were used to determine the level of compliance to the guidelines of the instrument, and wheelchair accessibility to the surveyed buildings. The result is Of the various items surveyed, elevators recorded the highest average accessibility (83% compliance), while parking areas recorded the lowest average of 18%. The compliance score of ramps was 39%, while entrances were 71% compliant. Wheelchair accessibility to toilets was 51%. And the conclusion was The poor compliance score for items such as parking areas, and ramps for

wheelchair users is probably because the physically challenged persons and experts in the area of physical ability management are not consulted and involved in the design and construction of these buildings. High compliance of entrances and toilets may be purely coincidental and not for meeting the needs of wheelchair users. To improve on the wheelchair accessibility in public buildings, there should be liaison between the users the disabled, and various professionals (the occupational therapists, physiotherapists, politicians, engineers and architects). The findings of this study indicate a great challenge to the aforementioned professionals. Recommendations were made to increase wheelchair accessibility to public buildings.

3.1.3. Shopping center wheelchair accessibility:

A study by McClain (2000): was held at three large shopping centers in the Southwest of Mexico included one mall that was opened in the mid-1990s, and two malls that were constructed prior to the law (but have undergone recent renovations). Use of the ADA Accessibility Guidelines Checklist for Buildings and Facilities (Architectural and Transportation Barriers Compliance Board [ATBCB], 1992) generated data which were analyzed descriptively to determine the frequency and percent of compliance in: parking lots, entrances, ramps, elevators, telephones, restrooms, food courts, and 12 specific store-types. No mall was fully compliant in any area, other than telephone specifications. In other areas, compliance ranged from 0% (ramp slopes in the newer mall) to many areas of 100% compliance (for example, outdoor curb ramps and food court seating spaces and aisles). The implications are that shoppers who are wheelchair mobile cannot count on complete compliance and cannot predict which physical architectural barriers they will find in shopping centers.

3.1.4. Perceived accessibility versus actual physical accessibility of healthcare facilities:

Sanchez et al.(2000) studied how healthcare clinics perceive themselves with regards to accessibility for persons with spinal cord injuries (SCI). All 40 of the clinics surveyed reported that they were wheelchair accessible; this study addressed the perception of accessibility as reported by clinic managers versus actual accessibility in healthcare clinics in a Midwestern metropolitan area for persons using wheelchairs however, there was significant variability in the number of sites that actually met the guidelines of the Americans with Disability Act. In general, a person using a wheelchair could enter the building, the examination room, and the bathroom. The majority of sites did not have an examination table that could be lowered to wheelchair level. Problems of accessibility appeared to be seriously compounded by the clinics' perception of how they met physical accessibility guidelines without consideration of the actual needs of persons with SCI.

3.1.5. Food store accessibility:

McClain and Todd(1990) investigated by survey the wheelchair accessibility of 20 grocery and convenience stores. The results of the survey indicated that types of stores with greatest accessibility, in descending order, were (a) rural grocery stores, (b) urban grocery stores, (c) urban convenience stores, and (d) rural convenience stores. No overall differences were found between the urban and rural stores. The researchers sent letters to inform the store managers about the changes should be made to overcome deficiencies noted. A follow-up study was conducted to see if the store managers, who were sent letters notifying them of their stores' deficiencies, would correct these problems. Six months after notification, the survey was repeated. Five of the 20 managers made changes in specific deficient areas, whereas the remaining 15 made no changes. The survey results and the fact that 25% of the stores made changes after they received the letter.

3.1.6. Barriers to access: frustrations of people who use a wheelchair for full-time mobility:

Pierce (1998) conducted A phenomenological study to answer the question, What is it like being an individual with a disability who uses a wheelchair for full-time mobility and lives in society with many potential barriers? A total of 9 people from Ohio and Pennsylvania composed the purposively selected sample. Colaizzi's method of data analysis was used to review transcriptions of interviews with those in the sample. The analysis identified a major theme: all participants had feelings of frustration concerning access. Four subtheme clusters related to this frustration emerged: issues of independence, attitudes of others toward people with disabilities, others' lack of understanding of the situations of individuals with disabilities, and lack of involvement of people with disabilities in decisions regarding the development of facilities for them. This study provides insights into the lived experience of accessibility in today's environment for people with disabilities who use a wheelchair for full-time mobility, offers direction for health professionals who work with these individuals, and serves as an impetus for further research.

3.1.7. Commentary on previous studies related to Wheelchair accessibility to public buildings:

These studies were conducted by different researchers in various countries testing major aspect of life which is related to the present study. Wheelchair accessibility in public buildings is important face to assess from many faces of disabled needs. May be wheelchair users are considered to be the hardest type of all physical disabilities. All studies shared the idea of testing the wheelchair accessibility in different and common places to the disabled.

Rivano (2004) and Pierce (1998) used A phenomenological study while McClain (2000) and Sanchez (2000) used ADA accessibility guidelines. The studies have different settings Rivano (2004) on 17 random public buildings, Useh (2001) descriptive study on 20 public buildings, McClain (2000) on shopping centers, Sanchez (2000) on 40 clinics, McClain and Todd(1990) on 20 grocery stores and finally Pierce (1998) on society. The studies had covered variety of important places, some of these places are considered to be recreational in comparison to the present study which is investigating hospital buildings accessibility. The overall result

showed lack of following to the standard criteria and guidelines of public buildings design, although the suggestions and recommendations asked for more efforts to meet with standard criteria and legislations. But this recommendation doesn't make any excuse to the Owners and Designers.

3.2. Studies to investigate the international standards of public buildings and accessibility guidelines:

3.2.1. Does the architectural design of burn centers comply with the Americans with Disabilities Act?

Kirby et al.(1996) took the advantage of the title III of the Americans with Disabilities Act (ADA) which requires that hospitals and burn centers be designed and constructed so that all public and common-use areas are accessible. At least 10% of patient bedrooms and toilets must be accessible to persons with mobility disorders. The study was to determine whether four hospitals with burn centers complied with Title III of the ADA. With use of the ADA accessibility guidelines as a tool a survey instrument was validated by a state government building inspector. The tool was used to inspect the burn center facility and common use areas in four hospitals with burn centers Charlottesville- USA . the result was in the four hospitals, numerous architectural barriers to persons with disabilities were noted. No burn center had a designated accessible room for persons with disabilities. The bedrooms, bathrooms, sinks, bathtubs, and toilets were not accessible to persons with disabilities. The common-use areas in the hospitals, in contrast, had few architectural barriers to persons with disabilities. Only one burn center had plans to eliminate architectural barriers in its hospital. Because the four hospitals with burn centers had numerous architectural barriers for persons with disabilities. The study concluded that hospitals do not comply with Title III of the ADA and are subject to severe penalty from the Health Care Financing Administration and the U.S. Department of Justice.

3.2.2. Accessibility of disabled to surgery departments in Essen, Germany:

Trosken and geraedts (2005) Investigated if Constructional barriers often prevent persons who are only partially able. The study aimed at analysing accessibility to orthopaedic and neurological practices and surgeries for wheelchair patients. The study took place in Essen, the sixth largest town in Germany, as an example of an urban area, where orthopaedists and neurologists are frequently accessed by wheelchair patients. Study was performed on-site investigations of the exterior and interior zones of all orthopaedic and neurological surgery buildings in Essen . surgeries were divided into four groups 1) fully accessible; 2) slight barriers; 3) considerable barriers; 4) massive barriers. The study result showed that none of the 58 investigated surgeries was fully accessible, 21 of the 29 surgeries of each medical specialty had massive barriers, so that wheelchair patients could access these surgeries only with the help of at least two (strong) persons. Six of the 29 orthopaedic and three of the 29 neurological surgeries had slight barriers, whereas two orthopaedic and five neurological surgeries had distinct barriers. Main barriers were steps in the entrance area; front, elevator or surgery doors too narrow (width less than 80 cm), and elevators too small. The result was neurological surgeries in Essen do not fulfil the quality feature "constructional accessibility", measures that have been taken in the past to help partially able persons to participate in this respective aspect of social life

have not been effective. New measures to improve the present situation should be agreed upon by all the institutions involved (politics, local authorities/construction supervision, sickness funds, doctors and associations of sickness fund physicians, and concerned persons). If voluntary measures do not lead to free choice of doctors for wheelchair patients, further legal regulations appear to be mandatory.

3.2.3. A pilot study of functional access to public buildings and facilities for persons with impairments:

Thapar et al. (2004) used a cross-sectional pilot study with a survey design. A four-member participant team representing three impairment types: mobility impaired person using a wheelchair, mobility impaired person who was not a wheelchair user, visually impaired person, and a control with no known impairments, challenged a stratified random sample of 30 public buildings in Greater Boston. Using a task oriented data collection instrument, functional access was determined in terms of percentage of tasks performed, time, distance, barriers and facilitators. To compare functional access to public buildings and facilities for persons with and without impairments. The result showed: Overall, task performance was high for the team. However, the wheelchair user reported a lower task performance (81%) in comparison to the control (100%) and persons with mobility and visual impairments (97-98%). There was little variation in mean values for time and distance to complete tasks. More barriers were reported by the persons with mobility impairments, wheelchair user and non-wheelchair user, and; highest facilitators by the person with visual impairment and the wheelchair user. The control reported the lowest barriers and facilitators. The types of barriers and facilitators varied for the three impairments and the control structural for wheelchair and mobility impairments, wayfinding for visual impairment and interpersonal for control. And the conclusion is task performance by itself may not be a good predictor of functional access. Barriers and facilitators are critical to understanding issues related to functional access for persons with impairments. Knowledge of how these differ for different impairments can be useful for improving environmental access and rehabilitation.

3.2.4. ADA compliance and the accessibility of physical activity facilities in western Oregon:

Cardinal and Spaziani (2003) investigated the accessibility of public facilities for all people. The aim of this study was to determine how compliant physical activity facilities in western Oregon the study conducted 5 years prior in a different geographic region. By direct observations and physical measurements taken during on-site visits to 50 physical activity facilities located in western Oregon during 2000-2001, facility compliance was characterized in terms of 10 structural domains. The result of the study showed that no facility was found to be 100% and the conclusion revealed that there is an on-going need and legal mandate for increasing the accessibility of physical activity facilities. Furthermore, from a social-ecological perspective, the environmental constraints identified in this study might be limiting factors in efforts aimed at increasing individuals with disabilities' physical activity involvement.

3.2.5. An analysis of the effects of ramp slope on people with mobility impairments:

Stanford et al. (1997) conducted study to evaluate the usability of the range of ramp slopes allowed under the current ADA(American Disability Association) accessibility guidelines. One hundred seventy-one subjects of all ages and using different types of mobility aids traversed a 30-foot ramp varying in slope from 1:8 to 1:20. Data were recorded for pulse rate, energy expenditure, rate of travel, distance traveled, and the location of rest stops. Findings show that among all subjects only a few manual wheelchair users had difficulty traversing all 30 feet in ascent, even on slopes as steep as 1:8. Based on these results, changes to the technical requirements for ramp slope and length cannot be recommended at this time.

3.2.6. Criteria in designing the educational edifices for people with special needs in Gaza Strip:

Almughany (2005) studied the required criteria in designing the educational edifices for disabled students in Gaza strip educational edifices, as well as the hindrances and difficulties that prevent the fulfillment of such criteria. Also the implementation of what's called the "determining planning criteria in designing educational edifices for the disabled students ". The study revealed that educational edifices in Gaza Strip is in need of buildings rehabilitation in order to meet with the standard criteria which will enhance social equal opportunity in the educational field.

3.2.8. Minimum guidelines and requirements for accessible design-- Architectural and Transportation Barriers Compliance Board. Final rule: (1991)

The Architectural and Transportation Barriers Compliance Board hereby revises its "Minimum Guidelines and Requirements for Accessible Design" (guidelines and requirements). These revisions respond to concerns registered by certain Board members and to issues raised in comments submitted during the rulemaking process. The purpose of the revisions is to make the guidelines and requirements more cost effective and consistent with Federal and nationally recognized standards while still providing ready access and use. The guidelines and requirements, as revised, will provide a basis for consistent and improved accessibility standards to be issued under the Architectural Barriers Act by the General Services Administration, the Department of Housing and Urban Development, the Department of Defense, and the United States Postal Service. For clarity, the guidelines and requirements are published in their entirety with the revisions incorporated.

3.2.9. Americans with Disabilities Act (ADA) accessibility guidelines for buildings and facilities. Architectural and Transportation Barriers Compliance Board. Final guidelines: (1982)

The Architectural and Transportation Barriers Compliance Board is issuing final guidelines to assist the Department of Justice to establish accessibility standards for new construction and alterations in places of public

accommodation and commercial facilities, as required by title III the Americans with Disabilities Act (ADA) of 1990. The guidelines will ensure that newly constructed and altered portions of buildings and facilities covered by title III of the ADA are readily accessible to and usable by individuals with disabilities in terms of architecture and design, and communication. The Department of Justice has proposed to adopt the guidelines as the accessibility standards for new construction and alterations in places of public accommodation and commercial facilities for purposes of title III of the ADA.

3.2.10. Criteria for Designing Handicapped Rehabilitation Centers. (Degree of M.Sc in Architectural engineering):

Al Namara (2002) perform study to establish the ideal architectural design in rehabilitation centers to suit the disabled individuals. The study were performed at Al Wafa medical rehabilitation hospital in Gaza, where interviews were done to all hospital staff team and the group of patients at the time of the study. The study helped the researcher to establish the idea of ideal rehabilitation center barrier-free design. And finally recommended for further attention to other public buildings to facilitate the disabled live.

3.2.11. Commentary on previous studies which investigates the international standards of public building:

This part of studies took the advantage of the law and standards design to examine some public building (hospital centers & public places). The overall results showed no places were fully 100% adapted or accessible to the disabled use. Another issue was the level of difficulties which was varied from one opinion to another depending on type of disability as it was clear on Thapar study (2004). Almughany (2005) study is similar to the present study with difference of the place of the study as the present study concerned with the hospital buildings in Gaza Strip and Almughany (2005) study was on the educational edifices. Finally studies mentioned that some of examined places which were not adapted to suit the disabled would be subjected to severe penalties as it was mentioned on Kirby (1996) .But obviously penalties issue is not effective as it was clear from the results that's the majority of studies showed many inaccessible places . The researcher can't imagine the study results for two reasons. First is most studies were held on popular foreign countries. And the second because the majority of studies are new, The question is how buildings owners got the construction permissions from the municipality without considering the disabled right of accessibility.

3.3. Studies to identify architectural barriers for the physically handicapped:

3.3.1. Accessibility and physical deficiency: identifying architectural barriers in internal areas of hospitals:

Pagliuca et al.(2007) tried to identify architectural barriers for the physically handicapped in the internal areas of four hospitals in the city of Sobral, in the State of Ceará in Portugal. It was a quantitative study for which data collection was carried out using a checklist based on the Brazilian Technical Standards Organization . The analysis identified the presence of access ramps (100%); staircases without banisters

(50%); doors with ideal width (100%); swinging doors with no windows (100%); internal circulation areas with obstacles (100%); ramps with no antiskid floors (100%); ramps and staircases with banisters (50%), but out of legal standards. One hospital was built entirely on the ground floor, but the others have thirteen internal staircases; 80% of the counters and 33% of the seats for the public comply with legal standards; 97% of the drinking fountains and telephones are not accessible and they concluded that there are physical barriers in these institutions and that the legislation is not being complied with.

3.3.2. Environmental barriers in mainstream schools:

Hemmingson and Borell .(2002) studied 34 students with physical disabilities, aged between 10 and 19 years to identify the barriers to participation in Swedish mainstream schools where the study was done and the result showed that two-thirds of the students experienced barriers to participation in both the physical and the social environment. A majority of the barriers originated from the way in which school activities were organized and carried out in schools. Failure to provide adequate environmental adjustments resulted in restricted participation or exclusion from some of the activities in class. Older students experienced significantly more barriers than younger ones because the school organization was less favourable. The results suggest that the way in which activities are organized in school is the area in need of most improvements to promote participation of students with physical disabilities.

3.3.3. Theoretical understanding and methodological challenges in accessibility assessments, focusing the environmental component:

Jensen et al.(2002) designed study to explore the environmental component in accessibility problems systematically. Twenty persons entitled were recruited in order to travel by low-floor bus. Two different methods were chosen. Critical incidents were collected during participant observation, and by means of a pilot instrument based on the Enabler Concept independent environmental assessments were performed. The result was not all environmental details registered during the participant observations were in agreement with the independent environmental assessment. Also participants gave information about what hindered them from using conventional public transport. And the conclusion was theoretical understanding behind accessibility assessments has benefited from the methodological challenges mapped out in this study.

3.3.4. Commentary on previous studies related to identify architectural barriers for the physically handicapped:

This section of studies aimed to identify the different types of barriers that is encountered by the disabled people. According to Pagliuca study on (2007) some modifications were found during the study but not according to the legal standards criteria. This also was found on other studies which illustrated some types of barriers such as: counters and drinking fountains on the other hand some modified areas such as: doors and stairs. Also on Hemmingson and Borell study found that barriers could have negative effects on the disabled in terms of lack of community and activity

participation in schools. The researcher believes that this very important face to assess which will be helpful to identify the most crucial barriers, so it will be published and recommended. This will definitely help to overcome these barriers on other buildings. Finally the interesting part was mentioned about penalties and fine on places don't follow the law by modifying their environment to the disabled people.

3.4. Studies regard community assessment:

3.4.1. Priority rating for community care:

Stevermuer et al.(2007) reports on priority rating through a standardized community care assessment system, based on screening for functional abilities and incorporating additional indicators of need and risk. Routinely collected measures used to generate a priority rating have proven useful in clinical decision making and active demand management at the service entry point. Priority rating is a step towards a more equitable and efficient assessment system. Three examples of priority rating systems are described. The first is a generalist application now implemented in routine practice across multiple service types in the Queensland community care and community health system. The second, narrower in scope, was designed for the NSW Home Care Service, and is also being routinely collected. The third was pilot tested in a state-wide program to supply aids and appliances to disabled people and introduced the additional concept of "capacity to benefit". The case studies show how a technical and data-driven approach can be useful in guiding policy in a complex health care sector.

3.4.2. Service needs of residents in community-based long-term care facilities in northern Taiwan:

Huang et al.(2008) performed study to quantify the service needs of residents in community-based long-term care (LTC) facilities and to determine their predictors, The Disabled older family members in Taiwan are often eventually sent to community-based LTC facilities. Many service needs of these residents are likely to go unmet. The researcher used A cross-sectional survey. This involved purposive sampling of 132 residents from 10 LTC facilities in Taipei City. A previously developed LTC service need assessment scale was used to collect information about the residents' needs in terms of five kinds of LTC services, namely health education, skilled nursing services, referral services, activities of daily living (ADL) assistance and instrumental activities of daily living assistance. The result showed that The mean age of residents was 75.2 years. The average period of institutionalization was 21.93 months. Overall, 70% of the residents had either complete or partial ADL function dependency. Among the specific ADL function dependencies of the residents, inability to take a bath was the most common. The most significant predictors of service needs were health status, age, number of children, number of medical diagnoses and whether the stay is self-choice. These combined variables explained between 25.5% and 41.6% of the variance of the need for LTC services. and The findings of this study show that age, health status, number of children, number of medical diagnoses and whether the stay is self-choice are significant determinants of residents' needs in terms of LTC.

3.4.3. Factors associated with good self-rated health of non-disabled elderly living alone in Japan: a cross-sectional study.

Sun et al.(2007) Studied if Self-rated health (SRH) is reported as a reliable predictor of disability and mortality in the aged population and has been worldwide to enhance the quality of life of the elderly. Nowadays, the elderly living alone, a particular population at great risk of suffering physical and mental health problems, is increasing rapidly in Japan and could potentially make up the majority of the aged population. However, few data are available pertaining to SRH of this population. Given the fact that sufficient healthcare is provided to the disabled elderly whereas there is little support for non-disabled elderly. Survey study was designed to investigate SRH of non-disabled elderly living alone and to identify the factors associated with good SRH with the purpose of aiding health promotion for the elderly. A cross-sectional study was conducted in a metropolitan suburb in Japan. Questionnaires pertaining to SRH and physical conditions, lifestyle factors, psychological status, and social activities, were distributed in October 2005 to individuals aged ≥ 65 years and living alone. Response rate was 75.1%. Among these respondents, a total of 600 male and 2587 female respondents were identified as non-disabled elderly living alone and became our subjects. Multivariate logistic regression was used to identify the factors associated with good SRH and sex-specific effect was tested by stepwise logistic regression. And the result showed that Good SRH was reported by 69.8% of men and 73.8% of women. Multivariate logistic regression analysis showed that good SRH correlated with, in odds ratio sequence, "can go out alone to distant places", no depression, no weight loss, absence of self-rated chronic disease, good chewing ability, and good visual ability in men; whereas with "can go out alone to distant places", absence of self-rated chronic disease, no weight loss, no depression, no risk of falling, independent activity of daily living(ADL), good chewing ability, good visual ability, and social integration (attend) in women. And finally the conclusion was For the non-disabled elderly living alone, sex-appropriate support should be considered by health promotion systems from the view point of SRH. Overall, the ability to go out alone to distant places is crucial to SRH of both men and women.

3.4.4. Commentary on previous studies related to community assessment:

Regular assessment and measures would improve the system. As well as prioritize health factors which is related positively on activity of daily living performances (ADL). Studies on community assessment showed that the more accessibility of community the more independent participation on life aspects for male, female, young and old. The researcher believes that self related health (SRH) could have remarkable improvement with securing suitable outdoor environmental adaptation for the elderly disabled.

3.5. Studies regard Workplace assessment:

3.5.1. Facilitating inclusive employment: an examination of the accommodations for and the barriers to employment for Russians with disabilities

Martz (2007) examined the barriers in work faced by individuals with disabilities in the Russian Federation. Inclusive employment involves a work setting that is physically accessible, and which fosters an attitude that is supportive of individuals with disabilities. Data were collected from 316 Russian adults with disabilities residing in various cities in Russia; they identified a total of 1915 barriers to work. Their list included physical barriers, attitudinal barriers, and lack of facilities. also reported a total of 1718 accommodations that they would require, to enable them to obtain work and to continue to work, including accommodating their physical and time-related needs, as well as those related to working conditions or job tasks. This research suggests a need for a consultation and outreach program to sensitize Russian employers to disability-related issues.

3.5.2. Workplace accommodations for people with disabilities: National Health Interview Survey Disability Supplement, 1994-1995.

Zwerling et al.(2003) Investigated if the presents data from the National Health Interview Survey Disability Supplement 1994-1995 (NHIS-D) describing the nature of workplace accommodations in the American workforce and factors associated with the provision of such accommodations. As American workers age, workers with impairments and functional limitations make up a larger percentage of our workforce. Of a nationally representative sample of workers aged 18 to 69 years with a wide range of impairments, 12% reported receiving workplace accommodations. Males (odds ratio (OR) 0.64; 95% confidence interval (CI) 0.53-0.78) and Southerners (OR 0.57; 95% CI = 0.47-0.70) were less likely than others to receive workplace accommodations. Those with mental health conditions were less likely than others to receive accommodations (OR 0.56; 95% CI = 0.44-0.70). College graduates (OR 1.53; 95% CI = 1.22-1.91), older workers, full time workers (OR 3.99; 95% CI = 2.63-3.87), and the self-employed (OR 1.76; 95% CI = 1.28-2.41) were more likely than others to receive accommodations.

3.5.3. Reasonable accommodations for medical faculty with disabilities.

Steinberg et al. (2002) studied the accommodations for medical staff with disability on a number of medical school faculty staff who have disabilities, and their experiences have generally escaped notice and scrutiny. Although most medical schools offer long-term insurance and extended leaves of absence for disability, relatively few have policies explicitly addressing accommodations for faculty with disabilities as they perform teaching, research, and clinical duties. The study place was University of Pennsylvania School of Medicine. the concerns of faculty with sensory and physical disabilities was explored. Anecdotal reports suggest that many faculty, fearing

reprisals, resist seeking job accommodations such as those mandated in the 1990 Americans with Disabilities Act (ADA). Although some faculty with disabilities have found supportive academic mentors, others report that lax institutional enforcement of ADA requirements, including physical access problems, demonstrates a tepid commitment to disabled staff. Potentially useful job accommodations include adjusting timelines for promotion decisions; reassessing promotions requirements that inherently require extensive travel; improving physical access to teaching, research, and clinical sites; and modifying clinical and teaching schedules. Faculty with disabilities bring identical intellectual and collegial benefits to medical schools as their nondisabled counterparts. In addition, they may offer special insights into how chronic illness and impairments affect daily life.

3.5.4. Making our offices universally accessible: guidelines for physicians.

Jones and Tamari (1997) developed recommendations for office-based physicians who wish to make their offices accessible to all patients. The study took place at Toronto hospital and the data were obtained from a series of searches of MEDLINE, CINAHL and Healthstar (previously Health) databases for articles on disability and family medicine, primary (health) care and family practice, and on access and offices, and health services accessibility, and from a telephone survey of 50 stakeholders. The study recommended that all physicians should take measures to improve practice accessibility. Improved access should be considered in each of the following areas: transportation and entrance to the facility, entrance to the office, waiting rooms, rest rooms, examination rooms, general building features and other features.

3.5.5. access to dental services for disabled people. A questionnaire survey of dental practices in Merseyside.

Edwards and merry (2002) Studied how accessible general dental practices thought that their services were and to identify the barriers they face in providing care for disabled people. Study through questionnaire survey was undertaken of all general dental practices in the Liverpool. The result showed that only one quarter of practices described themselves as having full physical access for disabled patients. However, despite this, over 90% of practices reported treating disabled patients and most were willing to treat more disabled patients. Dentists identified physical barriers, lack of time and the lack of domiciliary equipment as the main barriers to providing care for disabled people. The study recommended that work is needed to ensure that dental practices comply with the Disability Discrimination Act.

3.5.6. Work problems and accommodations reported by persons who are postpolio or have a spinal cord injury.

McNeal et al.(1999) studied (1) whether employees who are aging with their disability have experienced new work problems as a consequence of functional declines and (2) whether their work problems are being accommodated adequately. Ninety-six individuals with a disability (50 who are postpolio and 46 who had a spinal cord injury) were interviewed by phone. Each had worked at least 5 years postonset and was either currently working or unemployed for less than 5 years at the time of the interview. Forty-nine of

the 50 persons who are postpolio reported they had experienced functional declines in recent years, and 41 of the 50 rated the severity of their disability greater than it was when they first began working. As a result of the functional declines they had experienced, most (90.9%) of their work problems were new and would not have been significant problems for them when they first began working. The situation was very different for the group with spinal cord injuries. Only a few members of that group had experienced functional declines that were causing new problems at work. A total of 480 work problems were reported by study participants. Three out of every eight problems did not have an accommodation satisfactory to the employee. The primary reason why a satisfactory solution was not provided was that no accommodation had been identified. Employers were generally supportive of the employee's need for accommodation; they paid for 59.1% of the accommodations that had a cost and refused to provide an accommodation for only 18 of the 480 problems.

The researcher believes that workplace modifications was assessed in two different areas, the first was considers if the professional or worker was the disabled and the second assessed if the workplace it self being modified to the disabled.

3.5.7. Commentary on previous studies related to Workplace assessment:

Workplace is vital area to many lives which make it important aspect to assess for disabled equal job opportunity. Modified workplaces would increase the disabled to have a job and on the other hand will help the disabled employer to perform better. The modifications should cover tow main areas first the constructional which include (doors, entrances, corridors...etc) and the second is furniture inside the work environment. Studies regard workplace assessment showed lack of adaptations and more work to be done to assume accessibility. The researcher find out during the present study severe defect on the architecture design system locally. The issue of adapting workplaces needs pressure from Ministry of labor and The Municipality before issuing the construction permission. Finally the law states that 5% of all governmental institution should be disabled accessible compulsory.

3.6. Studies regard Home assessment and adaptations:

3.6.1. Challenges in the development of strategies for housing adaptation evaluations:

Fange and Iwarsson (2007) aimed to elucidate and problematize challenges inherent in the process of developing research-based strategies for housing adaptation (HA) evaluations feasible for municipality contexts. The challenges faced during the project were related to the assessment of outcomes, the logistic flow of the data-collection process, client availability for follow-up assessments as well as interpretation of changes in accessibility. Some challenges were due to the organizational HA framework in the municipalities, while others were related to the methodology used for outcomes assessment. Finally a set of evaluation recommendations for practice and research is provided.

3.6.2. Home environmental hazards among community-dwelling elderly persons in Taiwan:

Huang (2005) determined the prevalence and variables that best predict home environmental hazards among the community-dwelling elderly in Taiwan. An assessment was made of the home environments of 1212 people aged 65 years and older, chosen by cluster sampling from registered households in northern Taiwan. Environmental hazards were found in the majority of homes (60.4 %) where community-dwelling elderly people lived. The bathroom was the most common site for environmental hazards. Significant predictors of potential home environmental hazards were: living in an urban area (OR = 4.36, 95 % confidence interval (CI = 3.29, 5.76) , poor awareness of one ' s health status (OR = 1.86, 95 % CI = 1.31, 2.64) , family dysfunction (OR = 1.77, 95 % CI = 1.21, 2.59) , fear of falling (OR = 1.65, 95 % CI = 1.19, 2.28) , being older ($\geq$ 75 years, OR = 1.47, 95 % CI = 1.11, 1.96) , poor gait (OR = 10.76, 95 % CI = 4.48, 25.84) and poor balance (OR = 3.03, 95 % CI = 1.14, 8.09) . Most elderly persons do not live in a risk-free home environment. The recognition and removal of environmental hazards is imperative to the well-being of the elderly.

3.6.3. Environmental modifications in the homes of elderly Canadians with disabilities:

Fox (1995) performed study to (1) determine if the use of architectural modifications in the homes of the disabled elderly can reduce the level of disability; (2) determine the predictors of the use of architectural modifications; and (3) estimate the degree of need for environmental modifications. The degree of need was estimated using data from 8895 respondents (55 years and older) from the Canadian Health and Disability Survey (1983-84). A subgroup of 1520 respondents who needed architectural modifications was selected to predict: (1) the ability to perform instrumental activities of daily living (IADL) and (2) the use of architectural modifications. These data were analysed using multiple linear regression. Approximately 37.9% of the disabled elderly required at least one modification to their home. About 40% did not have the architectural modification that was needed. Income was found to be a predictor of the use of architectural modifications (p = 0.0273). Users of architectural modifications were more independent in IADL than non-users (p < 0.0312). In conclusion, there is a substantial need for environmental modifications in the homes of the disabled elderly. Furthermore, architectural modifications should be available at a low cost.

3.6.4. Levels of disability among the elderly in institutionalized and home-based care in Bahrain:

Al-Naser and Al-Hadad (1999) compared the levels of disability between the elderly admitted to an institution and those cared for at home. Of the 74 elderly people in this study, 56 were institutionalized and 18 were living at home. The Clifton Assessment Procedure for the Elderly (CAPE) was used to assess and compare the behavioural disabilities between the two groups. In

addition to their younger age, the home-cared elderly were less incontinent, more social, better communicators and less confused than the institutionalized group, despite the fact that they had more physical disabilities with regard to bathing and walking.

3.6.5. Adaptive housing: remodeling considerations for the disabled:

Chen et al.(1990) Stated that the disabled are handicapped only to the extent that they are prevented from being normal. The process of normalization is hampered by physical barriers in the home that make life difficult for disabled persons. Staff can be trained to eliminate these architectural barriers in the home, focusing primarily on accessibility, the bathroom, the bedroom, and the kitchen. Completion of the barrier-free design of the home should provide a cost-effective means for improving the quality of life for disabled persons and their families.

3.6.6. Commentary on previous studies related to Home assessment and adaptations:

The time spent by the disabled at home gives this section specialty for assessment. Some factors play important role in the assessment and the proper modifications of home assessment such as (age, gender, type and severity of disability). As it was mentioned by Fox (2005) there is a substantial need for environmental modifications in the homes of the disabled and architectural modifications should be available at a low cost. Home barrier-free design is ideal disabled home with priority to bathroom, the bedroom, and the kitchen. According to similar study concerned with home adaptation found out that free accessibility at home will improve Quality of life (QOL) for both the disabled and the family by increasing the independency of the disabled which will lead to stress relief to the family members.

3.7. Wheelchair mobility and assessment:

3.7.1. Characterization of power wheelchair use in the home and community:

Soneblum et al.(2008)studied the use of power wheelchairs to determine if multiple measures of mobility and occupancy jointly provide a more comprehensive picture of wheelchair usage and daily activity in full-time power wheelchair users than daily distance alone. Study design was Prospective observational .Subjects' everyday mobility was measured in their homes and communities for 2 weeks, and prompted recall interviews were conducted by phone. A convenience sample (N=25) of nonambulatory, full-time power wheelchair users. data were used to isolate chair use to (1) in the home, (2) not in the home indoors, or (3) outdoors. Distance wheeled, time spent wheeling, number of bouts, time spent in the wheelchair, and the percentage of time in the wheelchair spent wheeling were measured to describe wheelchair use. Study result showed that median wheelchair user spent 10.6 hours (range, 5.0-16.6h) in his/her wheelchair daily and wheeled

1.085 km (range, 0.238-10.585 km) over 58 minutes (range, 16-173 min) and 110 bouts (range, 36-282 bouts). Wheelchair use varied across subjects, within subjects from day to day, and between environments. Mobility bouts outdoors were longer and faster than those wheeled indoors. In a regression analysis, distance wheeled explained only 33% of the variation in the number of bouts and 75% in the time spent wheeling. The study concluded that Power wheelchair use varies widely both within and between users. Measuring distance, time, and number of bouts provides a clearer picture of mobility patterns than measuring distance alone, whereas occupancy helps to measure wheelchair function in daily activities.

3.7.2. The measurement of disability-related stress in wheelchair users:

Furlong M and Connor JP (2007) measured disability-related stress through the development of the Physical Disability Stress Scale (PDSS) for wheelchair users. Study design was Cross-sectional. in General community. Sample of 119 wheelchair users with an acquired physical disability joined the study using General Health Questionnaire-28 (GHQ) and the World Health Organization Quality of Life (WHOQOL-BREF) (Australian version). The result led to Factor analysis of PDSS items revealed 4 main factors of disability-related stress: access accounted for 33.7% of the variance, physical for 8.4% of the variance, social for 7.9% of the variance, and burden of care for 7.2% of the variance. Internal consistencies for the 4 factors were within acceptable ranges (alpha range, .78-.83). Concurrent validity was shown with the PDSS factors predicting 7% to 23% of the variance in GHQ subscales and total score and 12% to 31% of the WHOQOL-BREF subscales. Participants scoring in the GHQ psychiatric group showed significantly higher stress levels on the physical, social, and burden of care factors of the PDSS compared with the GHQ nonpsychiatric group. The results suggest the PDSS factors are valid measures of disability-related stress with potential for clinical and research applications. Confirmatory factor analyses with larger sample sizes of wheelchair users are required to establish consistency in the measurement of disability-related stress.

3.7.3. Assessing mobility characteristics and activity levels of manual wheelchair users:

Tolerico et al.(2007) investigated the mobility characteristics and activity levels of manual wheelchair users in the residential setting and at the National Veterans Wheelchair Games (NVWG). Although engaging in an active lifestyle is beneficial for maintaining quality of life, a majority of wheelchair users are inactive. This study Demographic factors that may have influenced activity in the home environment were also identified. Fifty-two manual wheelchair users completed a brief survey, and their activity was monitored with a custom data logger over a period of 13 or 20 days. We found that they traveled a mean +/- standard deviation of 2,457.0 +/- 1,195.7 m/d at a speed of 0.79 +/- 0.19 m/s for 8.3 +/- 3.3 h/d while using their primary wheelchair in the home environment. No significant differences in mobility characteristics or activity levels were found for level of spinal cord injury or disability. The study also found that subjects traveled significantly farther and faster and were

active for more hours during an average day at the NVWG than in the home environment ($p < 0.001$). and found that manual wheelchair users who were employed covered more distance, accumulated more minutes, and traveled a greater average maximum distance between consecutive stops than those who were unemployed. Results from this study provide a better understanding of the activity levels achieved by manual wheelchair users and insight into factors that may influence this activity.

3.7.4. Commentary on previous studies related to Wheelchair mobility and assessment:

Usage of wheelchair varied depends on the wheelchair type which automatically is decided by type of disability. Another issue if the wheelchair is electrical or manual the assessment done for out-doors using only or functioning as well. Putting on mind that wheelchair characteristic will positively influence smooth and easy use of wheelchair.

Main goal of rehabilitation is bringing the disabled back to normal or at least near to his previous life style. The researcher thinks that Wheelchair users society integration depends on many related other factors such as: age and gender of the user, type, modifications, and proper measurement of wheelchair, also the outer environment.

3.8. Studies on Mobility assistive device:

3.8.1. Mobility assistive device utilization in a prospective study of patients with first-ever stroke:

Jutai et al.(2007) estimated the extent to which clinical and functional features of stroke were related to the use of mobility assistive technology devices. They used Longitudinal study of quality of life after stroke. At Hospitals, rehabilitation centers, and universities in Ontario and Quebec. Number of Subjects ($N=316$) with confirmed initial stroke were included in this analysis. Fifty-eight percent of the overall sample were men ($n=184$). The mean age of this sample at the time of the stroke $\pm$ standard deviation was 65.3 ± 15.3 years (range, 19-96y). One hundred thirty-five patients received a mobility assistive device post stroke, and 181 did not. The study intervene by offering Assistive devices for mobility (canes, walkers, wheelchairs). To find out the assistive device use and mobility capacity. The result showed that Mobility device nonusers were less physically disabled than device users on a variety of measures. Poor physical functioning but good cognition were reliably associated with mobility device use. Use of multiple mobility assistive devices was more often associated with poorer physical functioning than was single device use. For single device users, wheelchair use was predicted by cognition, functional independence, and stroke recovery. Cane users, compared with walker users, had better mobility and were less physically impaired by stroke. And the study concluded that Patients were well matched to device type based on their mobility capacity. Finally the findings of this study suggest that assistive device prescription-outcome relationships in stroke can be effectively and meaningfully modeled.

3.8.2. Use of an ambulation assistive device predicts functional decline associated with hospitalization:

Mahoney et al.(1999) reported that Loss of functional independence occurs frequently with hospitalization. In community-dwelling elders, lower extremity disability is an important predictor of functional loss. Ambulation assistive devices (canes, walkers), as markers of lower extremity disability, may predict functional decline associated with hospitalization, but this has not been evaluated previously. They sought to determine the association of mobility impairment, as indicated by cane or walker use prehospitalization, with adverse outcomes at hospital discharge and 3 months post discharge. Subjects were community-dwelling adults (N = 1212) aged 70 and older, hospitalized for acute medical illness. The study was a secondary analysis of the Hospital Outcomes Project for the Elderly, a prospective randomized trial at three university and two private acute-care hospitals, which randomized patients to usual care or an intervention group designed to maintain functional abilities. The result after controlling for demographic and illness-related characteristics and prehospital function, mobility impairment was significantly associated with functional decline. Use of a walker was associated with 2.8 times increased risk for decline in ADL function by hospital discharge ($p = .0002$). Three months after discharge, patients who used assistive devices prior to hospitalization were more likely to have declined in both ADLs ($p = .02$) and IADLs ($p = .003$). the conclusion was that Hospitalized patients with mobility impairment, as indicated by use of a cane or a walker, are at high risk for functional decline. Such patients may benefit from more intensive in-hospital and post-hospital rehabilitative therapy to maintain function.

3.8.3. Use of mobility devices and changes over 12 months among very old people in five European countries:

Lofqvist et al.(2007) performed a study aimed to explore how the use of Mobility devices (MDs) changes over time among very old people in five European countries. As they believe that Mobility devices (MDs) such as walking sticks, rollators and wheelchairs, often play an important role for older people living at home, striving to remain independent in everyday activities. Empirical data from the ENABLE-AGE Survey Study, part of a major interdisciplinary research project carried out in Sweden ($n=314$), Germany ($n=322$), the United Kingdom ($n=316$), Hungary ($n=179$), and Latvia ($n=225$), were used. The result showed that the use of MDs in the Swedish, German and UK samples showed a significant increase between the first occasion of data collection (T1) and the second (T2), 12 months later. A walking stick was the most common MD on both occasions, with the exception that the number of users of rollators outdoors exceeded the number of users of walking sticks in the Swedish sample at T2. Among non-users of MDs at T1, 12-21% became new users at T2. Continued use was seen between T1 and T2 (80-94%) in the various samples, but the type of MD used changed. In the Swedish, German and UK samples, significant changes were seen in the use of MDs with greater assistive potential over the year. This study concluded that the pattern of MD use changes over a short period of time. Finally they recommended research is needed to determine outcomes of MD

use in very old age, focusing on the extent to which MDs decrease disability during the aging process, not least in a European perspective.

3.8.4. Commentary on previous studies related to Mobility assistive device:

People with mobility impairments, are advised to use Mobility devices (MD) like a cane or a walker, as they are at high risk for functional decline. Such people may benefit from more in-patient and out- patient rehabilitative therapy to maintain function and increase independency on ADL. MD type could be changed over a short period of time depends on the person progress and abilities. MD could play important role in older people independency and greater with free-barrier design environment. Assistive device doesn't stick to mobility devices but there are several types of assistive devices which could aid in enhancing person abilities and independency. Such devices could facilitate ADL independent performances.

3.9. Development of a measure of receptivity of the physical environment:

Stark et al.(2007) were keen to present a new measure of the receptivity of the physical environment for persons with mobility impairments and to offer preliminary information about its psychometric properties. Since the new models of disability identify the importance of measuring the influence of the environment (environmental barriers) on the performance of persons with disabilities. They used The Community Health Environment Checklist (CHEC), which was developed and validated in a community setting with a group of persons with mobility impairments. Sixty-three destinations (buildings, recreational areas or facilities) were assessed using the CHEC. Using Cronbach's alpha, the CHEC was found to have an internal consistency reliability of 0.95. The content validity of the CHEC was assured by the development procedure. They concluded that the CHEC offers a brief, easily administered measure of receptivity of the physical environment for persons with mobility impairments that is psychometrically sound.

3.10. Physical activity participation among persons with disabilities: barriers and facilitators:

Rimmer et al.(2004) conducted a study to identify various barriers and facilitators associated with participation in fitness and recreation programs/facilities among persons with disabilities. Focus groups were conducted in ten regions across the United States in 2001 to 2002 with four types of participants: (1) consumers with disabilities, (2) architects, (3) fitness and recreation professionals, and (4) city planners and park district managers. Sessions were tape-recorded and content analyzed; focus group facilitators took notes of identified barriers and facilitators to access. Content analysis of tape recordings revealed 178 barriers and 130 facilitators. The following themes were identified: (1) barriers and facilitators related to the built and natural environment; (2) economic issues; (3) emotional and psychological barriers; (4) equipment barriers; (5) barriers related to the use and

interpretation of guidelines, codes, regulations, and laws; (6) information-related barriers; (7) professional knowledge, education, and training issues; (8) perceptions and attitudes of persons who are not disabled, including professionals; (9) policies and procedures both at the facility and community level; and (10) availability of resources. They concluded that the degree of participation in physical activity among people with disabilities is affected by a multifactorial set of barriers and facilitators that are unique to this population. Finally, they recommended for future research which should utilize this information to develop intervention strategies that have a greater likelihood of success.

3.11. Mismatches between the home environment and physical capabilities among community-living older persons.

Gill et al.(1999) performed study to determine whether environmental hazards related to transfers, balance, and gait are any less prevalent in the homes of older persons with specific deficits in physical capabilities than they are in the homes of older persons without the same deficits. Used Cross-sectional study of a population-based cohort. At The general community in New Haven, Connecticut. A total of 1088 persons, aged 72 years and older, who had an environmental assessment of their homes.

Each participant underwent a physical performance assessment and comprehensive interview to document the presence of underlying deficits in physical capabilities. Items from the environmental assessment that were potentially hazardous for participants with specific deficits in transfers, balance, or gait were identified.

With the exception of no grab bars in the tub/shower, environmental hazards were as prevalent in the homes of participants with specific deficits in physical capabilities as they were in the homes of participants without the same deficits, and, in many cases, they were actually more prevalent. Among participants with and without observed difficulty standing from a chair, the prevalence of a low lying chair was 24% versus 14% ($\chi^2 = 13.4$; $P < .001$), respectively. Among participants with and without an observed deficit in turning, the prevalence of an obstructed pathway was 47% versus 37% ($\chi^2 = 8.7$; $P = .003$), respectively; and the prevalence of loose throw rugs was 72% in both groups. The study concluded that the epidemiologic link between environmental hazards and adverse functional outcomes can be strengthened, then interventions designed to enhance the everyday function of frail, older persons should focus on the environment as well as the individual.

3.12. Assessment of medical rehabilitation services to the physically disabled clients:

A cross sectional descriptive study aimed to evaluate medical rehabilitation services provided to the physically disabled clients (PDC) as a result of AL-QSA Intifada. The study was conducted in 5 rehabilitation facilities located in Gaza City on a sample of rehabilitation workers (RW). The study showed that 45% of the PDC were managed according to the rehabilitation plan in which 44% of them have participating in its setting. 77% of PDC believed that the rehabilitation process have met their expectations. Some obstacles in the reception of the rehabilitation services do exist. 74% of these obstacles were due to the accessibility barriers. The study recommended paying more attention to continue education and training of rehabilitation workers to improve skills and coordination between the different rehabilitation societies to complete the work of each other.

3.13. Conclusion:

Severe lack of local studies regards the Environmental Adaptation for the disabled people. What made the present study mainly depends on foreign studies. The present study tool benefits from only two local studies Al muughany (2005) and Al namara (2002).

The other foreign were applied in many countries, used different tests and questionnaires which investigated different faces of environmental adaptations to the disabled people. In comparison the researcher tried to assess most aspects of architectural adaptations which lead to barrier free design in one study.

The researcher took advantage of these previous studies and used it to perform questionnaire, select study design, write the conceptual framework, definition of terminologies and explanation of issues and recommendations. The present study is applied on Palestinians physically disabled subjects who accidentally met by the researcher during the study data collection at Al-Shifa medical complex, Naser medical complex and The European Gaza hospital .

According to the researcher knowledge, it is the first study in Rehabilitation field in Gaza Strip about environmental adaptations in public health buildings and facilities. That provides principal information's to decision makers about the present situation of these properties and this will aim to enhance the right of justice and equal opportunity.

Chapter four

Methods and Approval

Chapter 4

Methodology

Introduction:

This chapter describes the Materials and Methods that were used in this research. The adopted methodology to accomplish this study uses the following techniques: the information about the research design, research population, research sample size, research location, questionnaire design, statistical data analysis, content validity and pilot study.

4.1. Research Phases:

The first phase of the research thesis proposal included identifying and defining the problems and establishment objective of the study and development research plan. The second phase of the research included a summary of the comprehensive literature review. Literatures on claim management was reviewed. The third phase of the research included a field survey which was conducted with physically disabled in Gaza strip, also some actual claims cases were collected during the field survey. The fourth phase of the research focused on the modification of the questionnaire design, through distributing the questionnaire to pilot study. The purpose of the pilot study was to test and prove that the questionnaire questions are clear to be answered in a way that help to achieve the target of the study. In addition, it was important to ensure that all information received from physically disabled would be useful in achieving the research objective. The questionnaire was modified based on the results of the pilot study.

The fifth phase of the research focused on distributing the questionnaire. This questionnaire was used to collect the required data in order to achieve the research objective. The sixth phase of the research was data analysis and discussion. Statistical Package for the Social Sciences, (SPSS) was used to perform the required analysis. The final phase includes the conclusions and recommendations. Figure 4.1 shows the methodology flowchart, which leads to achieve the research objective

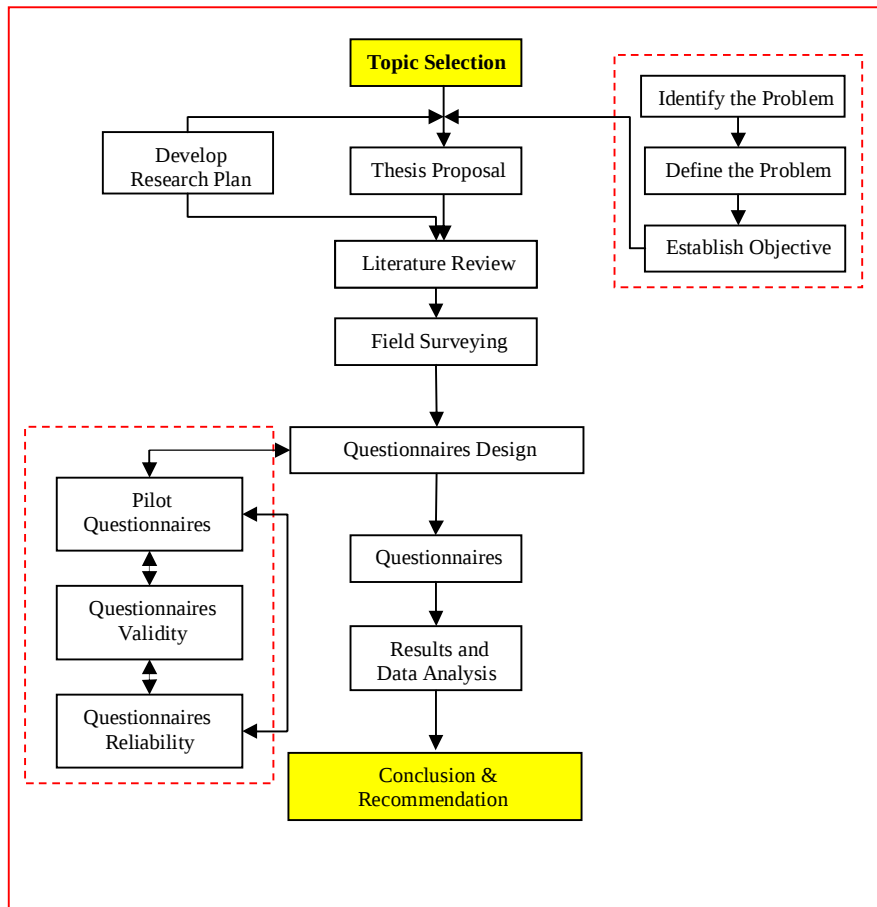


Figure (4.1) illustrates the methodology flow chart.

4.2. Study design:

CROSS-SECTIONAL design was used which involves the collection of data at one point.

4.3. Research period

The study started on December 2007 when the initial proposal was approved. The literature review was completed on 1st April 2008. The validity testing, piloting and questionnaire distribution and collection took one month and half and completed on the beginning of April 2008. The study was carried out in Gaza strip main general hospitals. The analysis, discussion, conclusion and recommendation was completed on the mid of May 2008.

4.4. Study Setting:

The research was carried to the physically disabled visiting Gaza strip main hospitals.

- Al Shifa medical complex
- Naser medical complex
- The European Gaza hospital

4.5. Research Population:

The population targets are the physically disabled individuals in Gaza strip who meet with the inclusion criteria.

4.6. Sample size:

The sample is defined as a part of total population that represents this population. These include using a census for small populations, imitating a sample size of similar studies, using published tables, and applying formulas to calculate a sample size. But in this particular study, the total population is the same as the sample size because the researcher took all the participants who meet up with the inclusion criteria and visited the studied hospitals during one month, which is the data collecting period. Non-Probability, Convenience (Accidental-Volunteer) sampling was used in the study which will seek individuals with certain characteristics (inclusion criteria) when entering the main gate of each hospital.

The sample size is equal 145 on the three studied hospitals.

4.7. Data collection

Questionnaire was chosen to be the method of collecting data in this research. Scanning by questionnaire can be the fastest and the easiest method of collecting data and is more accurate when starting processing and analyzing these data.

The instrument was collected by the researcher him self with partial assistant of the physiotherapy staff at Naser and The European hospitals, after oral clear instruction to the helping staff.

4.8. Questionnaire content

The questionnaire was provided with a covering letter explaining the purpose of the study, the way of responding, the aim of the research and the security of the information in order to encourage a high response. The questionnaire used 5-points likert scale, which used widely in the questionnaire

The questionnaire, which is used, aimed to study the **satisfactory environmental adaptation for the physically disabled in main general hospitals of Gaza Strip.**

The questionnaire design composed of three sections to accomplish the aim of the research, as follows:

1. The first section contained demographic questions.
2. The second section contained **the external space of hospital buildings** include three subsections as follows.
 - **First : Hospital main entrances**
 - **Second : Gardens & open spaces**
 - **Third : Car parking**
3. The third section is about **The internal environment of buildings** included six main subsections as follows:
 - **First : Main buildings entrances**
 - **Second : Horizontal accessibility**
 - **Third : Vertical accessibility**
 - **Forth : Toilets**
 - **Fifth : Finishing work**
 - **Sixth : Doors**

4.9. Pilot Study

It is customary practice that the survey instrument should be piloted to measure its validity and reliability and test the collected data. The pilot study was conducted by distributing the prepared questionnaire to panels of experts having experience in the same field of the research to have their remarks on the questionnaire.

Expert comments and suggestions were collected and evaluated carefully. All the suggested comments and modifications were discussed with the study's supervisor before taking them into consideration. In addition to 25 disabled individuals were taken as pilot study. At the end of this process, some minor changes, modifications and additions were introduced to the questions and the final questionnaire was constructed.

4.10. Inclusion criteria:

All physically disabled persons with permanent disability of more than one year.

Both sex are included between 18 – 50 years.

With or without assistive walking aid.

4.11. Exclusion criteria:

All physically disabled individuals who refuse to participate in the study.

All physically disabled individual with carers

4.12. Ethical Consideration and Permission:

The permission was obtained from the particular health authorities and the interviewed subjects

Such as - Helesinki Committee Approval.

- Hospitals Administration Offices Approval.

- Signed Constant Form from all the participants.

4.13. Validity of the Research:

We can define the validity of an instrument as a determination of the extent to which the instrument actually reflects the abstract construct being examined. High validity means the absence of systematic errors in the measuring instrument. When an instrument is valid; it truly reflects the concept it is supposed to measure. Achieving good validity required the care in the research design and sample selection the amended questionnaire was conducted by the supervisor and three expertises in the subject of study to evaluate the procedure of questions and the method of analyzing the results. The expertise agreed that the questionnaire was valid and suitable enough to measure the purpose that the questionnaire designed for.

4.14. Content Validity of the Questionnaire:

Content validity test was conducted by consulting two groups of experts. The first was requested to evaluate and identify whether the questions agreed with the scope of the items and the extent to which these items reflect the concept of the research problem. The other group was requested to evaluate that the instrument used is valid statistically and that the questionnaire was designed well enough to provide relations and tests between variables. The two groups of experts did agree that the

questionnaire was valid and suitable enough to measure the concept of interest with some amendments.

4.15. Statistical Validity of the Questionnaire:

To insure the validity of the questionnaire, two statistical tests should be applied. The first test was Criterion-related validity test (person test) which measure the correlation coefficient between each item in the field and the whole field. The second test was structure validity test (person test) that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one field and all the fields of the questionnaire that have the same level of similar scale.

4.16. Criterion Related Validity:

1) Internal consistency:

Internal consistency of the questionnaire is measured by a scouting sample, which consisted of thirty questions, through measuring the correlation coefficients between each paragraph in one field and the whole field. Table No. (4.1) below shows the correlation coefficient and p-value for each field items. As shown in the table the p-Values are less than 0.05 or 0.01, so the correlation coefficients of this field are significant at $\alpha = 0.01$ or $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to measure what it was set for.

Table No 4.1 Coefficient correlations between each item and related field

Part	Item	Coefficient correlation	p-value
First part : The external space of hospital buildings	First : Hospital main entrances		
	Face difficulties when entering the hospital main entrance	0.508	0.004
	There is more than one main entrance	0.503	0.005
	Second : Gardens & open spaces		
	There are gardens inside the hospital	0.503	0.005
	Face difficulties when moving inside the garden	0.439	0.015
	Face difficulties when getting-in & out the garden	0.722	0.000
	Third : Car parking		
	There is a car parking for the disabled inside the hospital	0.620	0.000
	Face difficulties when reaching the hospital	0.541	0.002

Second part : The internal environment of buildings	from the parking		
	First : Main buildings entrances		
	Encounter difficulties when entering the wards main entrances	0.811	0.000
	Encounter difficulties when getting-in& out the out-patient room	0.601	0.000
	Encounter difficulties when getting-in & out the inspection room	0.702	0.000
	There is special ramps for the disabled in the hospital	0.507	0.004
	Encounter difficulties when using the ramps	0.520	0.003
	Second : Horizontal accessibility		
	Encounter difficulties when moving inside the corridors	0.738	0.000
	The corridors spaces are insufficient for turning and moving	0.445	0.014
	Third : Vertical accessibility		
	There are protective side rails at the stairs	0.526	0.003
	Encounter difficulties when using the stairs	0.569	0.001
	Encounter difficulties when using the elevator	0.725	0.000
	Encounter difficulties when moving & turning inside the elevator	0.674	0.000
	Forth : Toilets		
	Encounter difficulties when getting-in & out the toilets	0.627	0.000
	There are helping side rails facilities at the toilets	0.632	0.000
	Encounter difficulties when turning and moving inside the toilets	0.608	0.000
	Fifth : Finishing work		
	Floors coverage unsuitable for movement at the hospital	0.570	0.001
	Encounter threat of sliding when moving on hospital floors	0.738	0.000
	Sixth : Doors		
	Encounter difficulties when getting-in & out the doors	0.787	0.000
	Encounter difficulties when opening & closing the doors	0.620	0.000

4.17. Structure Validity of the Questionnaire:

Structure validity is the second statistical test that was used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one field and all the fields of the questionnaire that have the same level of liker scale.

As shown in table No. (4.2), the significance values are less than 0.05 or 0.01, so the correlation coefficients of all the fields are significant at $\alpha = 0.01$ or $\alpha = 0.05$, so it can be said that the fields are valid to measure what it was set for to achieve the main aim of the study.

Table No 4.2 Structure Validity of the Questionnaire

Number	section	Person correlation coefficient	p-value
1	The external space of hospital buildings	0.626	0.000
2	The internal environment of buildings	0.971	0.000

4.18. Reliability of the Instrument

Reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient. For the most purposes reliability coefficient above 0.7 are considered satisfactory. Period from two weeks to one month is recommended between two tests. Due to complicated conditions that the contractors is facing at the time being, it was too difficult to ask them to responds to our questionnaire twice within short period. We can measure the reliability by using Cronbach's Alph A coefficient and Split -Half Method through the SPSS software.

4.18.1. Split -Half Method

This method depends on finding Pearson correlation coefficient between the means of odd rank questions and even rank questions of each field of the questionnaire. Then, correcting the pearson correlation coefficients can be done by using Spearman Brown correlation coefficient of correction. The corrected correlation coefficient

(Consistency coefficient) is computed according to the following equation:

Consistency coefficient = $2r/(r+1)$, where r is the pearson correlation coefficient. The normal range of corrected correlation coefficient $2r/(r+1)$ is between 0.0 and + 1.0. As shown in Table No.(4.3), all the corrected correlation coefficients values are between 0.79988 and 0.926981 and the significant (α) is less than 0.05 so all the corrected correlation coefficients are significance at $\alpha = 0.05$. It can be said that according to the Half Split method, the dispute causes group are reliable.

Table 4.3 Split-Half Coefficient method

Number	section	person-correlation	Spearman-Brown Coefficient	Sig. (2-Tailed)
1	The external space of hospital buildings	0.7025	0.825257	0.000
2	The internal environment of buildings	0.7195	0.836871	0.000
	Total	0.6847	0.812845	0.000

4.18.2. Cronbach's Coefficient Alpha

This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. As shown in Table No. (4) the Cronbach's coefficient alpha was calculated for the first field of the causes of claims, the second field of common procedures and the third field of the Particular claims. The results were in the range from 0.8330 and 0.9282, This range is considered high; the result ensures the reliability of the questionnaire.

Table 4.4. Cronbach's Alpha for Reliability

Number	section	No. of Items	Cronbach's Alpha
1	The external space of hospital buildings	7	0.8930
2	The internal environment of buildings	18	0.9179
	Total	25	0.9647

Statistical Manipulation:

To achieve the research goal, researcher used the statistical package for the Social Science (SPSS) for Manipulating and analyzing the data.

Statistical methods are as follows:

- 1- Frequencies and Percentile
- 2- Cronbach's Alpha Test for measuring reliability of the items of the questionnaires
- 3- Person correlation coefficients for measuring validity of the items of the questionnaires.

4- spearman –Brown Coefficient

5- one sample t test

7- one way ANOVA

Chapter five

Data Analysis and Results

Introduction:

The chapter illustrates the results of Statistical analysis of the data including descriptive analysis that presents the demographic characteristics and the main domains of environmental adaptations in the three studied hospitals (Al-shifa – Naser and The Europeans). Lastly the researcher interprets and discusses the results.

5.1. Descriptive analysis of the study:

The total number of this study sample was 145 participants were (46%) from Al shifa, (29%) from Naser and (25%) from the European hospital. The next followed tables will illustrate the demographic and other related characteristics.

5.2. Sample Kolmogorov-Smirnov Test

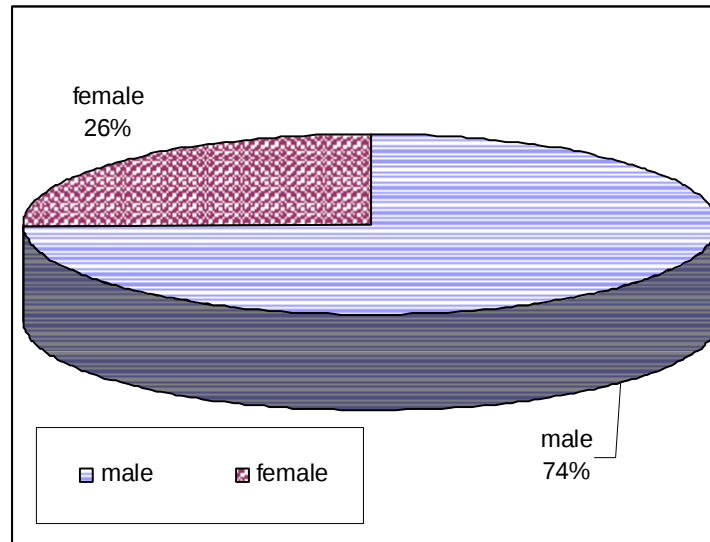
Kolmogorove- Smirnov test was used to identify if the data follow normal distribution or not, this test is considered necessary in case testing hypotheses as most parametric test stipulate data to be normally distributed.

Test result is shown in table (5.1) , clarifies that the calculated p-value is greater than the significant level which is equal 0.05 (p-value. > 0.05), this in turn denotes that data follows normal distribution, and so parametric tests must be used.

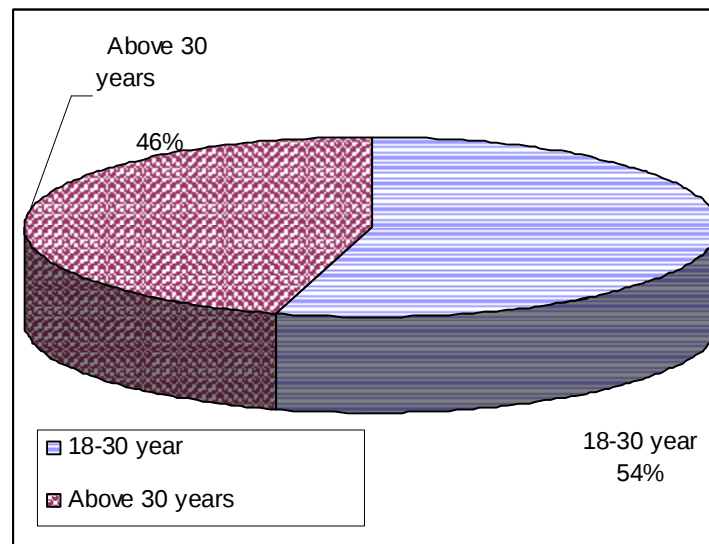
Table 5.1
One-Sample Kolmogorov-Smirnov Test

Number	section	Kolmogorov-Smirnov Z	P- value
1	The external space of hospital buildings	0.795	0.553
2	The internal environment of buildings	1.018	0.251
	Total	0.855	0.458

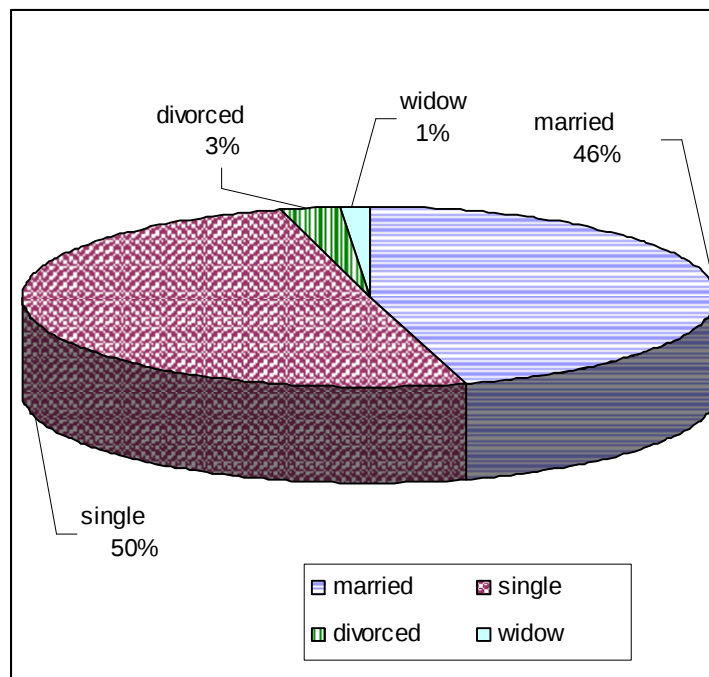
- Gender : 74.5% from the sample are male, and 25.5% from the sample are female.



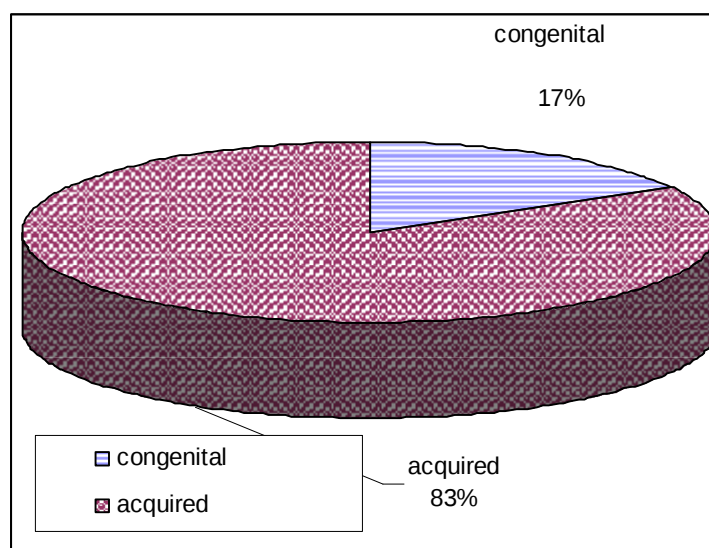
- Age: 54.5% of the sample had ages from 18-30 year, and 45.5% had ages above 30 years.



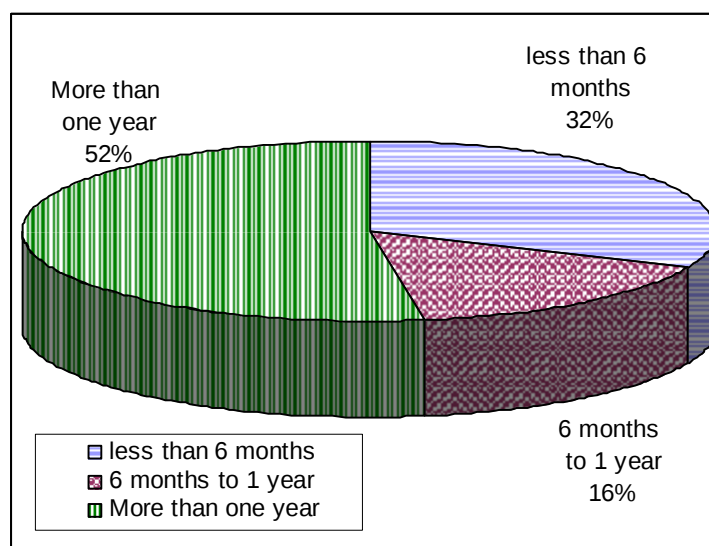
- Marital status: 45.5% of the sample was married, 50.3% of the sample was single, 2.8% of the sample was divorced, and 1.4% of the sample were widow.



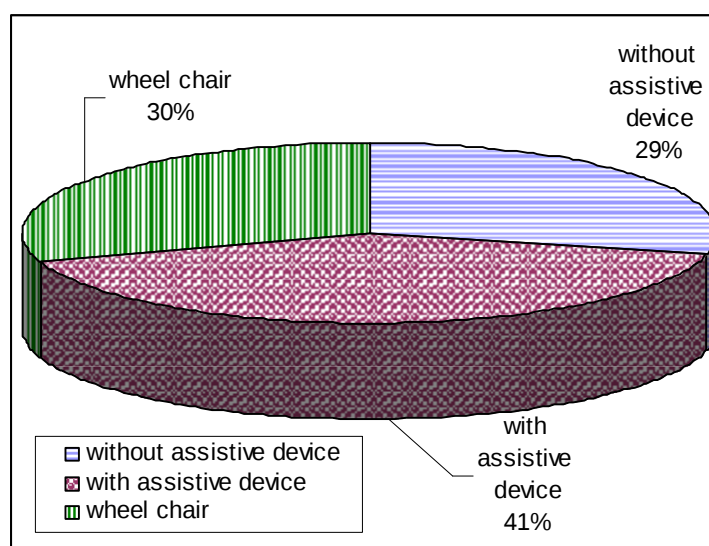
- 16.6% of the sample the type of disability was congenital, and 83.4% from the sample the type of disability was acquired.



- Age of disability : 31.7% of the sample the age of disability was less than 6 months, 15.9% of the sample the age of disability was between 6 months to one year, and 52.4% of the sample , the age of disability was more than one year.

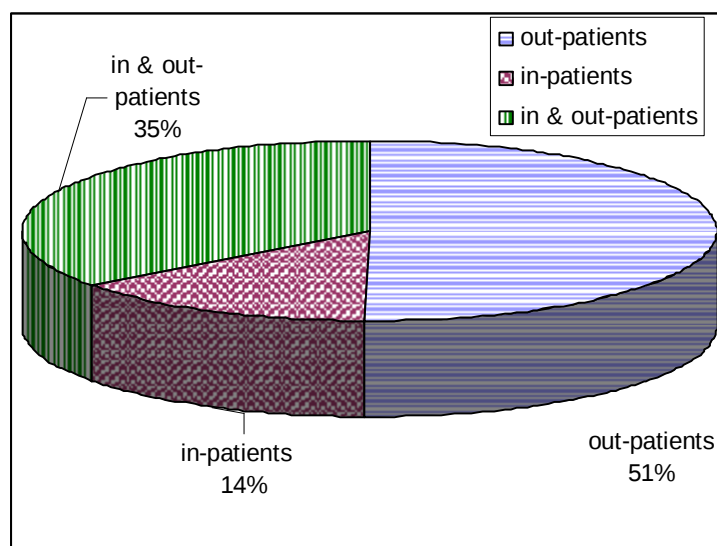


- Ambulation defect:** 29.0% of the sample the **ambulation defect** was **without assistive device**, 40.7% of the sample the **ambulation defect** was with assistive device, and 30.3% of the sample the **ambulation defect** was **wheel chair**.



Almost 70% of the participants are with assistive device and wheelchair users, this fact is expressing how hard and major the injuries of the majority of the participants.

- **Place of visit** 50.3% of the sample visited the out-patients, 14.5% of the samples visited the in-patients, 35.25 of the sample visited both in and out patients.



- **The studied hospital** : 46.2% of the sample were in Al-Shefa, 29.0% of the sample were in Naser, and 24.8% of the sample were in the European hospital.

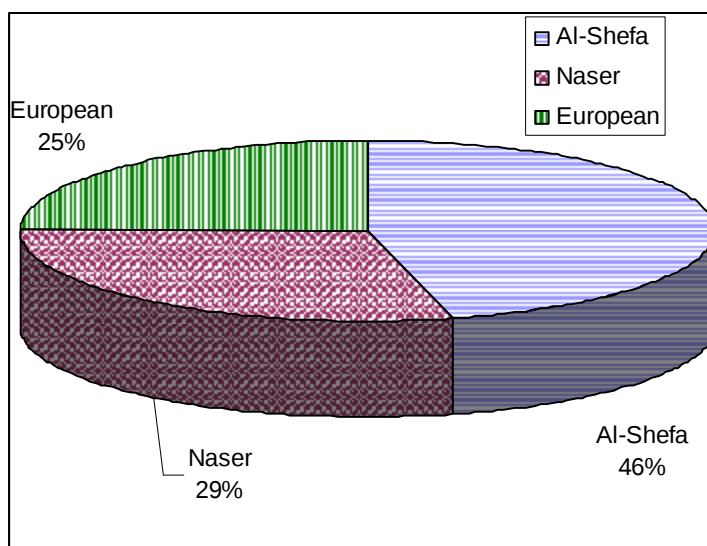


Table No.(5.2) show the characteristics of the sample as the following:

Table 5.2
Characteristics samples

Variable	Categories	Percent	Frequency
Gender	male	108	74.5
	female	37	25.5
Total		145	100.0
Age	18-30 year	79	54.5
	Above 30 years	66	45.5
Total		145	100.0
Marital status	married	66	45.5
	single	73	50.3
	divorced	4	2.8
	widow	2	1.4
Total		145	100.0
Type of disability	congenital	24	16.6
	acquired	121	83.4
Total		145	100.0
age of disability	less than 6 months	46	31.7
	6 months to 1 year	23	15.9
	More than one year	76	52.4
Total		145	100.0
ambulation defect	without assistive device	42	29.0
	with assistive device	59	40.7
	wheel chair	44	30.3
Total		145	100.0
place of visit	out-patients	73	50.3
	in-patients	21	14.5
	in & out-patients	51	35.2
Total		145	100.0
The studied hospital	Al-Shefa	67	46.2
	Naser	42	29.0
	European	36	24.8
Total		145	100.0

Discussion and interpretation of each section's items.

In the following tables, we use one sample t test to test if the opinion of the respondent in the content of the sentences are positive (mean weight greater than "60%" and the p-value less than 0.05) or the opinion of the respondent in the content of the sentences are neutral (p- value is greater than 0.05) or the opinion of the

respondent in the content of the sentences are negative (weight mean less than "60%" and the p-value less than 0.05)

First part : The external space of hospital buildings

First : hospital main entrances:

Table No.(7) show the following results:

1- The mean weight of the opinion of the respondent in item " Face difficulties when entering the hospital main entrance " was " 64.8%" with respect to a sample in Al-Shefa hospital, " 66.7% " with respect to a sample in Naser , " 57.8%" with respect to a sample in European hospital, and " 63.6" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " There is more than one main entrance " was " 82.7%" with respect to a sample in Al-Shefa hospital, " 70.5%" with respect to a sample in Naser , " 73.9%" with respect to a sample in European hospital, and " 77.0%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent in main entrances sub-field equal " 73.7%" with respect to a sample in Al-Shefa hospital, " 68.6%" with respect %to a sample in Naser , " 65.8%" with respect to a sample in European hospital, and " 70.3" with respect to a sample in all hospitals.

Table 5.3
Mean , weight mean, t test and p-value for hospital main entrances sub-field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	Face difficulties when entering the hospital main entrance	3.2	64.8	1.67	0.099	3.3	66.7	1.64	0.109	2.9	57.8	0.50	0.618	3.2	63.6	1.72	0.088
2	There is more than one main entrance	4.1	82.7	10.69	0.000	3.5	70.5	3.26	0.002	3.7	73.9	3.65	0.001	3.8	77.0	9.99	0.000

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Second : gardens & open spaces

Table No.(8) show the following results:

1.The mean weight of the opinion of the respondent in item " There are gardens inside the hospital " was " 66.0%" with respect to a sample in Al-Shefa hospital, " 60.0%" with respect to a sample in Naser , "83.9%" with respect to a sample in European hospital, and " 68.7%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " Face difficulties when moving inside the garden " equal " 62.1%" with respect to a sample in Al-Shefa hospital, " 57.1%" with respect to a sample in Naser , " 54.4%" with respect to a sample in European hospital, and " 58.8%" with respect to a sample in all hospitals.

3.The mean weight of the opinion of the respondent in item " Face difficulties when getting-in & out the garden " was " 63.3%" with respect to a sample in Al-Shefa hospital, " 57.1%" with respect to a sample in Naser , " 59.4%" with respect to a sample in European hospital, and " 60.6%" with respect to a sample in all hospitals.

Table 5.4

Mean , mean weight, t test and p-value for gardens & open spaces sub-field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	There are gardens inside the hospital	3.3	66.0	1.84	0.070	3.0	60.0	0.00	1.000	4.2	83.9	6.42	0.000	3.4	68.7	3.85	0.000
2	Face difficulties when moving inside the garden	3.1	62.1	1.02	0.311	2.9	57.1	-0.86	0.393	2.7	54.4	-1.96	0.058	2.9	58.8	-0.81	0.419
3	Face difficulties when getting-in & out the garden	3.2	63.3	1.70	0.094	2.9	57.1	-0.80	0.429	3.0	59.4	-0.16	0.872	3.0	60.6	0.34	0.733

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

The mean weight of the opinion of the respondent for gardens & open spaces was " 63.8%" with respect to a sample in Al-Shefa hospital," 58.1%" with respect to a sample in Naser , " 65.9%" with respect to a sample in European hospital, and " 62.7%" with respect to a sample in all hospitals.

Third: car parking

Table No.(5.5) show the following results:

1.The mean weight of the opinion of the respondent in item " There is a car parking for the disabled inside the hospital " was " 33.7%" with respect to a sample in Al-Shefa hospital, " 49.5%" with respect to a sample in Naser , " 61.7%" with respect to a sample in European hospital, and " 45.2%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " Face difficulties when reaching the hospital from the parking " was " 66.0%" with respect to a sample in Al-Shefa hospital, " 56.7%" with respect to a sample in Naser , " 53.9%" with respect to a sample in European hospital, and " 60.3%" with respect to a sample in all hospitals.

Table 5.5
Mean , mean weight, t test and p-value for car parking sub-field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	There is a car parking for the disabled inside the hospital	1.7	33.7	-9.99	0.000	2.5	49.5	-2.34	0.024	3.1	61.7	0.33	0.747	2.3	45.2	-6.22	0.000
2	Face difficulties when reaching the hospital from the parking	3.3	66.0	2.81	0.007	2.8	56.7	0.98	0.333	2.7	53.9	1.64	0.110	3.0	60.3	0.16	0.873

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

The mean weight of the opinion of the respondent for car parking was " 49.9%" with respect to a sample in Al-Shefa hospital, "53.1%" with respect to a sample in Naser , "57.8%" with respect to a sample in European hospital, and " 52.8%" with respect to a sample in all hospitals.

The external space of hospital building -field

Table No.(5.6) show the following results:

1.The mean weight of the opinion of the respondent for " Hospital main entrances " was " 73.7%" with respect to a sample in Al-Shefa hospital, " 68.6%" with respect to a sample in Naser , "65.8%" with respect to a sample in European hospital, and " 70.3%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent for " Gardens & open spaces " was " 63.8%" with respect to a sample in Al-Shefa hospital, " 58.1%" with respect to a sample in Naser , " 65.9%" with respect to a sample in European hospital, and " 62.7%" with respect to a sample in all hospitals.

3.The mean weight of the opinion of the respondent for "Car parking " was " 49.9%" with respect to a sample in Al-Shefa hospital, "53.1%" with respect to a sample in Naser , "57.8%" with respect to a sample in European hospital, and "52.8%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " The external space of hospital building " was " 62.6%" with respect to a sample in Al-Shefa hospital, " 59.7%" with respect to a sample in Naser , " 63.6%" with respect to a sample in European hospital, and " 62.0%" with respect to a sample in all hospitals.

Table 5.6
Mean , mean weight, t test and p-value for The external space of hospital building -field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	Hospital main entrances	3.7	73.7	8.64	0.000	3.4	68.6	2.93	0.005	3.3	65.8	2.06	0.047	3.5	70.3	7.66	0.000
2	Gardens & open spaces	3.2	63.8	2.01	0.048	2.9	58.1	0.68	0.501	3.3	65.9	2.86	0.007	3.1	62.7	2.03	0.044
3	Car parking	2.5	49.9	5.81	0.000	2.7	53.1	2.54	0.015	2.9	57.8	0.70	0.487	2.6	52.8	5.21	0.000

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Second part : the internal environment of buildings

First : main buildings entrances:

Table No.(5.7) show the following results:

1.The mean weight of the opinion of the respondent in item " encounter difficulties when entering the wards main entrances " was " 67.8%" with respect to a sample in Al-Shefa hospital, " 68.1%" with respect to a sample in Naser , " 54.4%" with respect to a sample in European hospital, and " 64.6%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " Encounter difficulties when getting-in& out the out-patient room " was " 68.7%" with respect to a sample in Al-Shefa hospital, " 58.1%" with respect to a sample in Naser , " 55.0%" with respect to a sample in European hospital, and " 62.2%" with respect to a sample in all hospitals.

3.The mean weight of the opinion of the respondent in item " Encounter difficulties when getting-in & out the inspection room " was " 64.2%" with respect to a sample in Al-Shefa hospital, " 61.0%" with respect to a sample in Naser , " 51.1%" with

respect to a sample in European hospital, and " 60.0%" with respect to a sample in all hospitals.

4.The mean weight of the opinion of the respondent in item " There is special ramps for the disabled in the hospital " was " 60.9%" with respect to a sample in Al-Shefa hospital, " 61.0%" with respect to a sample in Naser , " 65.0%" with respect to a sample in European hospital, and " 61.9%" with respect to a sample in all hospitals.

5.The mean weight of the opinion of the respondent in item " Encounter difficulties when using the ramps " was " 68.1%" with respect to a sample in Al-Shefa hospital, " 56.2%" with respect to a sample in Naser , " 62.2%" with respect to a sample in European hospital, and " 63.2%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " main buildings entrances " was " 65.9%" with respect to a sample in Al-Shefa hospital, " 60.9%" with respect to a sample in Naser , " 57.6%" with respect to a sample in European hospital, and " 62.4%" with respect to a sample in all hospitals.

Table 5.7
Mean , mean weight, t test and p-value for main buildings entrances sub-field

	hospital	Al-Shefa				Naser				European				All hospital			
No.	Item	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	encounter difficulties when entering the wards main entrances	3.4	67.8	2.66	0.010	3.4	68.1	1.90	0.064	2.7	54.4	1.35	0.185	3.2	64.6	2.13	0.035
2	Encounter difficulties when getting-in& out the out-patient room	3.4	68.7	3.13	0.003	2.9	58.1	0.49	0.628	2.8	55.0	1.25	0.221	3.1	62.2	1.09	0.278
3	Encounter difficulties when getting-in & out the inspection room	3.2	64.2	1.41	0.163	3.0	61.0	0.22	0.826	2.6	51.1	2.41	0.021	3.0	60.0	0.00	1.000
4	There is special ramps for the disabled in the hospital	3.0	60.9	0.39	0.699	3.0	61.0	0.26	0.800	3.3	65.0	1.27	0.212	3.1	61.9	1.07	0.284
5	Encounter difficulties when using the ramps	3.4	68.1	3.07	0.003	2.8	56.2	1.14	0.263	3.1	62.2	0.58	0.563	3.2	63.2	1.71	0.089

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Second : horizontal accessibility

Table No.(5.8) show the following results:

1. The mean weight of the opinion of the respondent in item " Encounter difficulties when moving inside the corridors" was " 58.8%" with respect to a sample in Al-Shefa

hospital, " 57.1%" with respect to a sample in Naser , " 54.4%" with respect to a sample in European hospital, and " 57.2%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " The corridors spaces are insufficient for turning and moving " was " 57.0%" with respect to a sample in Al-Shefa hospital, "56.2 % " with respect to a sample in Naser , " 52.8%" with respect to a sample in European hospital, and " 55.7%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " horizontal accessibility " was " 57.9%" with respect to a sample in Al-Shefa hospital, " 56.7%" with respect to a sample in Naser , " 53.6%" with respect to a sample in European hospital, and " 56.5%" with respect to a sample in all hospitals.

Table 5.8
Mean , weight mean, t test and p-value for horizontal accessibility sub-field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	Encounter difficulties when moving inside the corridors	2.9	58.8	-0.43	0.670	2.9	57.1	-0.66	0.514	2.7	54.4	-1.35	0.185	2.9	57.2	-1.34	0.182
2	The corridors spaces are insufficient for turning and moving	2.9	57.0	-1.13	0.261	2.8	56.2	-1.07	0.290	2.6	52.8	-1.93	0.062	2.8	55.7	-2.33	0.021

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Third : vertical accessibility

Table No.(5.9) show the following results:

1.The mean weight of the opinion of the respondent in item " There are protective side rails at the stairs " was " 62.4%" with respect to a sample in Al-Shefa hospital, " 69.5%" with respect to a sample in Naser , " 72.2%" with respect to a sample in European hospital, and " 66.9%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " Encounter difficulties when using the stairs " was " 68.4%" with respect to a sample in Al-Shefa hospital, " 61.0%" with respect to a sample in Naser , " 59.4%" with respect to a sample in European hospital, and " 64.0%" with respect to a sample in all hospitals.

3.The weight mean of the opinion of the respondent in item " Encounter difficulties when using the elevator " was " 70.4%" with respect to a sample in Al-Shefa hospital, " 66.7%" with respect to a sample in Naser , " 53.3%" with respect to a sample in European hospital, and " 65.1%" with respect to a sample in all hospitals.

4.The mean weight of the opinion of the respondent in item " Encounter difficulties when moving & turning inside the elevator " was " 61.2%" with respect to a sample in Al-Shefa hospital, " 58.1%" with respect to a sample in Naser , " 53.3%" with respect to a sample in European hospital, and " 58.3%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " vertical accessibility " was " 65.6%" with respect to a sample in Al-Shefa hospital, " 63.8%" with respect to a sample in Naser , " 59.6%" with respect to a sample in European hospital, and " 63.6%" with respect to a sample in all hospitals.

Table 5.9
Mean , weight mean, t test and p-value for vertical accessibility sub-field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	There are protective side rails at the stairs	3.1	62.4	0.88	0.381	3.5	69.5	2.68	0.011	3.6	72.2	3.25	0.003	3.3	66.9	3.65	0.000
2	Encounter difficulties when using the stairs	3.4	68.4	3.64	0.001	3.0	61.0	0.28	0.781	3.0	59.4	-0.15	0.884	3.2	64.0	2.29	0.023
3	Encounter difficulties when using the elevator	3.5	70.4	3.50	0.001	3.3	66.7	1.71	0.095	2.7	53.3	-1.55	0.129	3.3	65.1	2.38	0.019
4	Encounter difficulties when moving & turning inside the elevator	3.1	61.2	0.40	0.692	2.9	58.1	-0.47	0.643	2.7	53.3	-1.46	0.154	2.9	58.3	-0.77	0.442

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Forth : toilets

Table No.(5.10) show the following results:

1.The mean weight of the opinion of the respondent in item " Encounter difficulties when getting-in & out the toilets " was " 70.1%" with respect to a sample in Al-Shefa hospital, " 68.1%" with respect to a sample in Naser , " 61.1%" with respect to a sample in European hospital, and " 67.3%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " There are helping side rails facilities at the toilets " was " 50.7%" with respect to a sample in Al-Shefa hospital, " 61.4%" with respect to a sample in Naser , " 68.9%" with respect to a sample in European hospital, and " 58.3%" with respect to a sample in all hospitals.

3.The mean weight of the opinion of the respondent in item " Encounter difficulties when turning and moving inside the toilets " was " 69.0%" with respect to a sample in Al-Shefa hospital, " 69.0%" with respect to a sample in Naser , " 61.1%" with respect to a sample in European hospital, and " 67.0%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " toilets " was " 63.3%" with respect to a sample in Al-Shefa hospital, " 66.2%" with respect to a sample in Naser , " 63.7%" with respect to a sample in European hospital, and " 64.2%" with respect to a sample in all hospitals.

Table 5.10
Mean , mean weight, t test and p-value for toilets sub-field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	Encounter difficulties when getting-in & out the toilets	3.5	70.1	3.40	0.001	3.4	68.1	1.90	0.064	3.1	61.1	0.28	0.777	3.4	67.3	3.49	0.001
2	There are helping side rails facilities at the toilets	2.5	50.7	-3.83	0.000	3.1	61.4	0.39	0.701	3.4	68.9	2.75	0.009	2.9	58.3	-0.90	0.370
3	Encounter difficulties when turning and moving inside the toilets	3.4	69.0	3.54	0.001	3.5	69.0	2.27	0.029	3.1	61.1	0.30	0.768	3.4	67.0	3.72	0.000

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Fifth : finishing work

Table No.(5.11) show the following results:

1.The mean weight of the opinion of the respondent in item " Floors covers are unsuitable for movement at the hospital " was " 61.2%" with respect to a sample in Al-Shefa hospital, " 67.6%" with respect to a sample in Naser , " 48.3%" with respect to a sample in European hospital, and " 59.9%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " Encounter threat of sliding when moving on hospital floors " was " 59.7%" with respect to a sample in Al-Shefa hospital, " 56.7%" with respect to a sample in Naser , " 52.2%" with respect to a sample in European hospital, and " 57.0%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " finishing work " was " 60.4%" with respect to a sample in Al-Shefa hospital, " 62.1%" with respect to a sample in Naser , " 50.3%" with respect to a sample in European hospital, and " 58.4%" with respect to a sample in all hospitals.

Table 5.11
Mean , weight mean, t test and p-value for finishing work sub-field

hospital		Al-Shefa				Naser				European				All hospital			
No.	Item	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	Floors coverage unsuitable for movement at the hospital	3.1	61.2	0.44	0.658	3.4	67.6	1.98	0.055	2.4	48.3	-3.62	0.001	3.0	59.9	-0.07	0.943
2	Encounter threat of sliding when moving on hospital floors	3.0	59.7	-0.13	0.898	2.8	56.7	-1.04	0.302	2.6	52.2	-2.28	0.029	2.8	57.0	-1.84	0.068

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Sixth : doors

Table No.(5.12) show the following results:

1.The mean weight of the opinion of the respondent in item " Encounter difficulties when getting-in & out the doors " was " 51.0%" with respect to a sample in Al-Shefa hospital, " 60.5%" with respect to a sample in Naser , " 48.3%" with respect to a sample in European hospital, and " 53.1%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent in item " Encounter difficulties when opening & closing the doors " was " 56.7%" with respect to a sample in Al-Shefa hospital, " 51.9%" with respect to a sample in Naser , " 55.0%" with respect to a sample in European hospital, and " 54.9%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " hospital doors " was " 53.9%" with respect to a sample in Al-Shefa hospital, " 56.2%" with respect to a sample in Naser , " 51.7%" with respect to a sample in European hospital, and " 54.0%" with respect to a sample in all hospitals.

Table 5.12
Mean , weight mean, t test and p-value for hospital doors sub-field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	Encounter difficulties when getting-in & out the doors	2.6	51.0	3.45	0.001	3.0	60.5	0.12	0.904	2.4	48.3	3.17	0.003	2.7	53.1	3.59	0.000
2	Encounter difficulties when opening & closing the doors	2.8	56.7	1.23	0.224	2.6	51.9	2.33	0.025	2.8	55.0	1.20	0.238	2.7	54.9	2.69	0.008

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

The internal environment of buildings

Table No.(5.13) show the following results:

1.The mean weight of the opinion of the respondent for " Main buildings entrances " was " 65.9%" with respect to a sample in Al-Shefa hospital, " 60.9%" with respect to a sample in Naser , " 57.6%" with respect to a sample in European hospital, and " 62.4%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent for " Horizontal accessibility " was " 57.9%" with respect to a sample in Al-Shefa hospital, " 56.7%" with respect to a sample in Naser , " 53.6%" with respect to a sample in European hospital, and " 56.5%" with respect to a sample in all hospitals.

3.The mean weight of the opinion of the respondent for " Vertical accessibility " was " 65.6%" with respect to a sample in Al-Shefa hospital, " 63.8%" with respect to a sample in Naser , " 59.6%" with respect to a sample in European hospital, and " 63.6" with respect to a sample in all hospitals.

4.The mean weight of the opinion of the respondent for " Toilets " was " 63.3%" with respect to a sample in Al-Shefa hospital, " 66.2%" with respect to a sample in Naser , " 63.7%" with respect to a sample in European hospital, and " 64.2%" with respect to a sample in all hospitals.

5.The mean weight of the opinion of the respondent for " Finishing work " was " 60.4%" with respect to a sample in Al-Shefa hospital, " 62.1%" with respect to a sample in Naser , " 50.3%" with respect to a sample in European hospital, and " 58.4%" with respect to a sample in all hospitals.

6.The mean weight of the opinion of the respondent for " Doors " was " 53.9%" with respect to a sample in Al-Shefa hospital, " 56.2%" with respect to a sample in Naser , " 51.7%" with respect to a sample in European hospital, and " 54.0%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " the internal environment of buildings " was " 62.6%" with respect to a sample in Al-Shefa hospital, " 61.6%" with respect to a sample in Naser , " 57.1%" with respect to a sample in European hospital, and " 60.9%" with respect to a sample in all hospitals.

Table 5.13
Mean , weight mean, t test and p-value for the internal environment of buildings field

	hospital	Al-Shefa				Naser				European				All hospital			
No.	Item	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	Main buildings entrances	3.3	65.9	3.43	0.001	3.0	60.9	0.30	0.763	2.9	57.6	-0.88	0.388	3.1	62.4	1.75	0.083
2	Horizontal accessibility	2.9	57.9	-0.85	0.396	2.8	56.7	-0.96	0.345	2.7	53.6	-1.97	0.057	2.8	56.5	-2.06	0.042
3	Vertical accessibility	3.3	65.6	3.35	0.001	3.2	63.8	1.65	0.107	3.0	59.6	-0.15	0.878	3.2	63.6	2.92	0.004
4	Toilets	3.2	63.3	1.95	0.055	3.3	66.2	2.20	0.034	3.2	63.7	1.84	0.074	3.2	64.2	3.45	0.001
5	Finishing work	3.0	60.4	0.19	0.848	3.1	62.1	0.75	0.458	2.5	50.3	-3.58	0.001	2.9	58.4	-1.02	0.311
6	Doors	2.7	53.9	-2.51	0.014	2.8	56.2	-1.21	0.232	2.6	51.7	-2.55	0.015	2.7	54.0	-3.63	0.000

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Satisfactory Environmental Adaptation for the Physically Disabled In Main General Hospitals of Gaza Strip

Table No.(5.14) show the following results:

1.The mean weight of the opinion of the respondent for " The external space of hospital buildings " was " 62.6%" with respect to a sample in Al-Shefa hospital, " 59.7%" with respect to a sample in Naser , " 63.6%" with respect to a sample in European hospital, and " 62.0%" with respect to a sample in all hospitals.

2.The mean weight of the opinion of the respondent for " the internal environment of buildings " was " 62.6%" with respect to a sample in Al-Shefa hospital, " 61.6%" with respect to a sample in Naser , " 57.1%" with respect to a sample in European hospital, and " 60.9%" with respect to a sample in all hospitals.

The mean weight of the opinion of the respondent for " Satisfactory Environmental Adaptation For The Physically Disabled In Main General Hospitals Of Gaza Strip field " was " 62.6%" with respect to a sample in Al-Shefa hospital, " 61.0%" with respect to a sample in Naser , " 58.9%" with respect to a sample in European hospital, and " 61.2%" with respect to a sample in all hospitals.

Table 5.14
Mean, weight mean, t test and p-value for Satisfactory Environmental Adaptation For The Physically Disabled In Main General Hospitals Of Gaza Strip field

No.	hospital	Al-Shefa				Naser				European				All hospital			
		Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value	Mean	Weight mean	T test	P-Value
1	The external space of hospital buildings	3.1	62.6	2.21	0.031	3.0	59.7	0.16	0.874	3.2	63.6	1.92	0.063	3.1	62.0	2.12	0.036
2	the internal environment of buildings	3.1	62.6	2.18	0.033	3.1	61.6	0.70	0.489	2.9	57.1	1.36	0.182	3.0	60.9	0.92	0.358

The value of critical t value at degrees of freedom "144" and significance level 0.05 equal 1.97(two tailed)

Table No.(5.15) show that 62.8% from the sample the number of visiting the hospital between 0-2 times, 16.6% from the sample the number of visiting the hospital between 3-5 times, and 20.7% from the sample the number of visiting the hospital more than 5 times

Table 5.15
how many times do you visit the hospital monthly?

how many times do you visit the hospital monthly?	Frequency	Percent
0-2 times	91	62.8
3-5 times	24	16.6
More than 5 times	30	20.7
Total	145	100.0

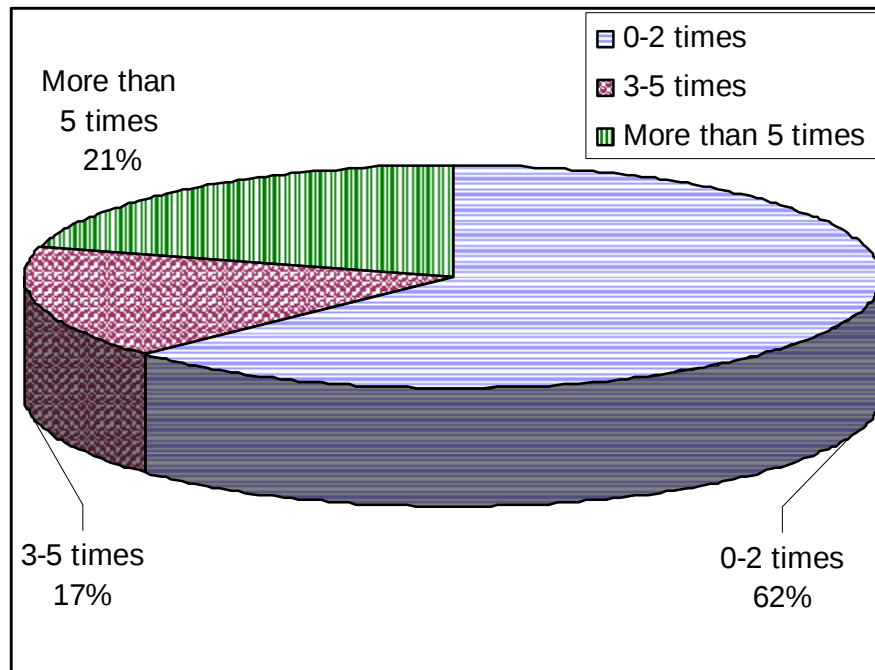


Table 5.16
General results to the questionnaire item's

The Summary of the Results

First part: The external space of hospital buildings

First : Hospital main entrances	AL-SHIFA	NASER	E H G
Face difficulties when entering the hospital main entrance	64.8%	66.7%	<u>57.8%</u>
There are more than one main entrance	<u>82.7%</u>	70.5%	73.9%

Second : Gardens & open spaces	AL-SHIFA	NASER	E H G
There are gardens inside the hospital	66%	60%	<u>83.9%</u>
Face difficulties when moving inside the garden	62.1%	57.1%	<u>54.4%</u>
Face difficulties when getting-in & out the garden	63.3%	<u>57.1%</u>	59.4%

Third : Car parking	AL-SHIFA	NASER	E H G
There are a car parking for the disabled inside the hospital	33.6%	49.5%	<u>61.7%</u>
Face difficulties when reaching the hospital from the parking	66%	56.7%	<u>53.9%</u>

Second part : The internal environment of buildings

First : Main buildings entrances	AL-SHIFA	NASER	E H G
Encounter difficulties when entering the wards main entrances'	67.8%	68.1%	<u>54.4%</u>
Encounter difficulties when getting-in& out the out-patient room	68.7%	58.1%	<u>55%</u>
Encounter difficulties when getting-in & out the inspection room	64.2%	61%	<u>51.1%</u>
There are special ramps for the disabled in the hospital	61%	60.9%	<u>65%</u>
Encounter difficulties when using the ramps	68.1%	<u>56.2%</u>	62.2%

Second : Horizontal accessibility	AL-SHIFA	NASER	E H G
Encounter difficulties when moving inside the corridors	58.8%	57.1%	<u>54.4%</u>
The corridors spaces are insufficient for turning and moving	57%	56.2%	<u>52.8%</u>

Third : Vertical accessibility	AL-SHIFA	NASER	E H G
There are protective side rails at the stairs	62.4%	69.5%	<u>72.2%</u>
Encounter difficulties when using the stairs	68.4%	61%	<u>59.4%</u>
Encounter difficulties when using the elevator	70.4%	66.7%	<u>53.3%</u>
Encounter difficulties when moving & turning inside the elevator	61.2%	58.1%	<u>53.3%</u>

Forth : Toilets	AL-SHIFA	NASER	E H G
Encounter difficulties when getting-in & out the toilets	70.1%	68.1%	<u>61.1%</u>
There are helping side rails facilities at the toilets	50.7%	61.4%	<u>68.9%</u>
Encounter difficulties when turning and moving inside the toilets	69%	69%	<u>61.1%</u>

Fifth : Finishing work	AL-SHIFA	NASER	E H G
Floors coverage unsuitable for movement at the hospital	61.2%	67.6%	<u>48.3%</u>
Encounter threat of sliding when moving on hospital floors	59.7%	56.7%	<u>52.2%</u>

Sixth : Doors	AL-SHIFA	NASER	E H G
Encounter difficulties when getting-in & out the doors	51%	56.5%	<u>48.3%</u>
Encounter difficulties when opening & closing the doors	56.7%	<u>51.9%</u>	55%

Note: the underlined numbers indicates the best adapted hospital with respect to the correspondent question.

Table 5.17
Satisfactory environmental adaptation for the physically disabled in main general hospitals of Gaza strip

Hospital	Percentage	Rank
Al-Shefa	41.84	3
Naser	44.80	2
European	51.50	1
Average	46.04	

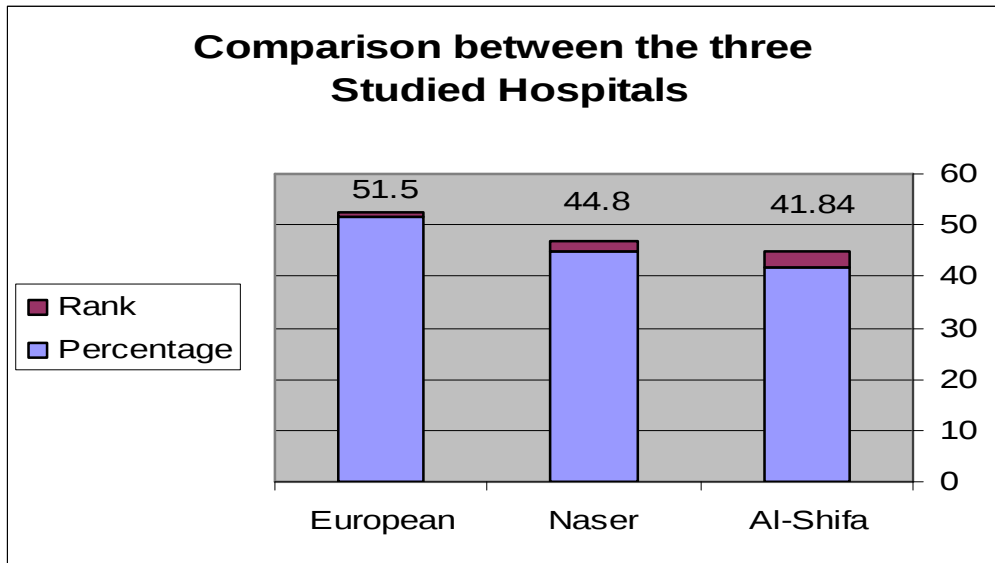


Figure (5.1) illustrates the compared results between the hospitals

Chapter six

Discussion

Discussion:

In this chapter the researcher will discuss the main findings of the study. This study is the first one on the field of the field of environmental adaptation in Palestine according to the researcher knowledge.

The study investigated the opinions of 145 disabled about the present environmental adaptation on Gaza Strip main general hospitals Al-shifa, Naser and the European.

6.1. Demographic Characteristics

6.1.1. Gender:

The study showed that 75% of the participants were male which is logically accepted due to the lifestyle they have.

6.1.2. Age:

The study showed that there is no significant difference between the ages of the two groups participated on the study as it was 55% for the participants between 18-30 and 45% for the participants above 30 years.

6.1.3. Marital Status:

The study showed that 50% of the participants were single while 46% of them were married.

6.1.4. Types of disability:

The study showed that 83% of the participants with acquired disability, this significant rate indicate the present local as result of the Israeli occupation and aggression.

6.1.5. Age of disability:

More than 50% of the participants with disability of more than one year old.

6.1.6. Ambulation defect:

More than 70% of the participants with assistive ambulatory devices.

6.1.7. Place of visit:

More than 50% of the participants visited the out-patient department.

6.1.8. The studied hospital:

Majority (46%) of the participants visited Alshifa hospital due to the crowdedness of Gaza city.

6.2. The external space of the hospital building

6.2.1. Hospital main entrance:

The result showed high degree on difficulty when entering the hospital main entrance with general rate of more than 60% but, on the other hand the participants were quite happy about the presence of more than one main entrance at each hospital.

6.2.2. Gardens & open spaces:

Generally, the participants agreed about the presence of gardens and green areas on the hospitals, on the other hand the majority expressed of facing difficulties when moving within it.

6.2.3. Car parking:

The participants showed remarkable low score about the presence of disabled car parking especially on Al-shifa hospital. Also majority of the participants admitted facing difficulty in reaching the hospital buildings from the car parking.

6.3. The internal environmental building

6.3.1. Main building entrance:

Majority of the participants admitted of facing difficulty using the entrance, with average rate of more than 60%, however the European hospital showed a little superiority over Al-shifa and Naser hospitals.

6.3.2. Horizontal accessibility:

The participants were unhappy about the corridors measurements and accessibility with average rate of 50%.

6.3.3. Vertical accessibility:

The participants showed high rate of unacceptance about the present vertical accessibility however, the European hospital showed superiority over the other hospitals.

6.3.4. Toilets:

The participants showed disappointed result about the toilets adaptability in general, but the European hospital had better scores compared to Al-shifa and Naser hospital.

6.3.5. Finishing work:

The result showed that floor coverage is source of danger and difficulty when used but, the result was good on the European hospital.

6.3.6. Doors:

Average score of 50% supported that the doors are adapted and suitable for the disabled use in general.

Generally, the study revealed that patient's opinion about the environmental adaptations is low.

As the analysis showed remarkable unsatisfied results. This conclusion is similar to the research opinion as direct consequence of lack of commitment to international

standard criteria of public buildings which considers the accessibility needed to the disabled individuals at the same time minimizing possible barriers and obstacles.

The average satisfaction percentage about the present environmental adaptations on the three studied hospitals is 46.04%.

At the same time there are disparity in the ratio between the studied hospitals which were as follows: Al-Shifa hospital 41.84%, Naser 44.80% and the Europeans 51.50%. The researcher believes that there are some factors helped the Europeans hospital to be more superior and recognized than the other hospitals such as :

- The building is a modern new construction which gave the chance to consider some of the adaptations needed.
- Continuing of architectural renovation which helps to relieve barriers and to improve general accessibility.

Generally, this result clearly shows disabled unhappiness from the present environmental adaptations on the three studied hospitals. In which strongly supports the idea of urgent need to general architectural renovation on the hospital buildings to be more applicable to the disabled usage.

The results is some how similar to the other studies results which is on the literature review section. Most of the studies on the review section showed unsatisfied disabled from environmental adaptations.

The researcher believes that the present study is more comprehensive than the other studies on the review section as it covers and measures more than one aspect and part of environmental adaptations.

It was observed that some of the examined parts are accepted and superior on one particular hospital at the same time bad on other, on the other hand, some of the examined parts were bad on the three studied hospitals.

For example the part of having more than one main entrance, Al-Shifa had remarkable superiority. And the part of the car parking is bad on the three studied hospitals.

Finally despite of the general unhappiness met by disabled individuals on the environmental adaptations on three studied hospitals, The Europeans hospital is partially more adapted than Naser;s and Al- Shifa hospitals.

6.4. The researcher commentary from the field visits:

A part from the statistical analysis to the collected data from the participants and the results found. The researcher has his own comments.

This part of the chapter expresses the researcher's impressions in assessing the studied aspects of the environmental adaptations based on long rehabilitation experience.

The researcher had visited the studied locations for several times during collection of data and had close look at the investigated items.

Before getting further into the explanation, the researcher believes that the hospital location plays an important factor which could facilitate the disabled mission to reach the hospital. From this Al-Shifa and Naser's hospitals have better locations than the European hospital.

The external space of hospital buildings:

1- Hospital main entrance: The researcher believes that it was fairly accepted on the three studied hospitals.

2- Gardens & open spaces: The European hospital has better gardens spaces followed by Al-Shifa then Naser .

3- Car Parking: Al-Shifa has bigger and closer car park than The European and Naser.

The internal space of hospital buildings:

1- Main building entrance: The researcher believes that The European hospital is better in this particular aspect than Al-Shifa and Naser.

2- Horizontal accessibility: The Europeans has better horizontal accessibility followed by Al-Shifa the Naser.

3- Vertical accessibility: The European has better vertical accessibility followed by Al-Shifa the Naser.

4- Toilets: Absolutely The European is better than the other hospitals with big margin.

5- Finishing work: The European has good finishing work followed by Al-Shifa the Naser.

6- Doors: The European is much adapted among the three hospitals.

The researcher thinks of why the Europeans hospital is better than Al-Shifa and Naser hospitals from his point of view is because it's new constructed building compared to the others. Means that peoples with special needs and the disabled were considered when the building was constructed.

And to be fair The European hospital has the worst location for the disabled as it is quite far away from the town center.

Comparing the study result with other results:

The researcher believes that the result of the present study which is clearly found that, there is severe defect on the constructional accessibility for the physically disabled is similar to most results on the studies on the literature review section.

Trosken and geraedts(2005) investigated if the constructional barriers often prevent persons who are only partially disabled, the result was only neurological surgeries do not fulfill the quality feature "constructional accessibility", however the present study showed disruption on the accessibility system all over the hospital wards.

Pagliuca(2007) tried to identify the architectural barriers for the physically handicapped in four hospitals and concluded that there are physical barriers in these institutions, and the legislation is not being complied with. The present study showed

similar result of having defects on most of the accessibility aspects were examined, mainly the disabled car parking and toilets.

The researcher believes that the present study identified the major disruption on most of the investigated environmental accessibility aspects which is good lead to all concern sides for further constructional improvement however, Study for Al-namara(2002) was directed to establish the ideal architectural design in rehabilitation centers to suit the disabled individuals, also recommended further attention to public buildings. The researcher believes that the result of this study would be much better if the construction work on the studied hospitals done according to the ideal free barriers design.

Some studies were directed to assess the functional accessibility to public buildings as in Thapar(2004) and other investigated workplace accommodations such as Zwerling(2003), and this indicates the advance level of adaptation research, not as the present study which investigated a basic health institutions that should be adapted ages ago.

Similar study investigated the access to dental clinics for the disabled individuals as in Edwards and Merry(2002) with result that the dental clinics doesn't comply with the disability discrimination act. Generally this discussion expressed that there is international lack of commitment towards the constructional accessibility to the disabled as it was obvious from the general results of all the examined places locally and abroad, with respect to different percentages of the studies.

The present study showed clear idea about the present environmental adaptation on Gaza Strip main general hospitals with very low satisfaction result from the disabled, In fact it also directed the vision to the severe area of defects which needs a lot of organized professional work from the correspondents, in order to establish the general adaptational system.

Chapter seven

Conclusion & Recommendations

Chapter 7

Conclusion & Recommendations

7.1. Conclusion:

The environmental adaptation and building free barriers design represent a major problem worldwide, the present study examined the environmental adaptation for the physically disabled on Gaza Strip main general hospitals. The study showed clear disruption on the constructural system which negatively affects the disabled social life, The result of the study identified the areas of major constructional defects that annoy the disabled such as the car parking and toilets.

The results revealed that percentage of satisfaction about the present environmental adaptations on Al-shifa hospital was 42%, 45% at Nasers hospital and 52% at The European hospital with average of 46% on the three locations, hospital main entrance was the item of highest satisfaction score while the car parking was the item with least score.

Generally the study revealed that the disabled opinion regarding the present environmental adaptations on Gaza strip main general hospitals is remarkably low.

The researcher believes that this study has highlighted one of the disabled problems, which is the absence of free barriers design on public building on Gaza Strip and provided the basic criteria which could lead to easy, safe and accessible building for the disabled. Also helping the decision makers to identify and spot the needs to the next stage of improvement.

Barrier free design will not reduce the number of disabilities but can reduce the number of people operating under environmental handicapping conditions.

Hopefully, changing the conditions under which people interact will bring closer the day when person with crutch is no longer considered a cripple but some one who essentially a human being with the bad and the good qualities that make up the identity and of nations resources which could increase its profits and reduce its expenses.

The researcher set some recommendations and suggestions which might help the concerned parties from the authorities to improve environmental adaptations and related facilities. This would lead to better lives to the disabled, Finally the study recommended urgent Renovation of buildings to meet the disabled demands.

7.2. Recommendations:

- The Ministry of local authority, MOH, and Municipalities should bear the responsibility for implementation of the correspondent disabled law.
- Reviewing and changing building codes so that it includes the necessary acts that legislates the design requirements for this group of people.
- Developing a policy for government sponsored solutions to this problem.
- The introduction of the necessary courses and study programs to create the awareness of architecture students of the design needs and requirements of physically disabled individuals and the importance of this problem socially and economically.
- Holding seminars that aim at helping the Palestinian architect identify the problem, suggest way of solving it and be aware of the benefits to the society of solving this problem.
- Assigning to the media the responsibility for removing the attitudinal barriers and changing behavior and attitudes towards this group.
- Penalizing those how break the law from the public and private sectors.
- Increase the community awareness about the different concepts of disability.

Suggestions:

The researcher believes that there is a lot of work to be done, and always a big Pyramid starts with small block. The first step towards proper adapted environment is by directing the responsible authorities to this proposition parallel with logic suggestions, recommendations and solutions to the problem.

The researcher found in this study several items that needed further studies as the following:

1. Enhance more studies about environmental adaptations investigating other faces of environment such as:
 - Out- Environment
 - In- Environment
 - Workplace Environment
 - Community Environment
 - Home Environment
2. Network connection between Palestinian handicapped associations and related societies to publish the benefits, negatives, law and code to environmental adaptation.
3. Urging researchers to conduct further studies in the area of community rehabilitation.
4. Using effective tools as media and brochures to help the physically disabled people recognize their community resources.
5. Further study to examine the adapted buildings, if it is built according to the standard criteria of free barriers design.
6. Further study to assess environmental adaptation for other disabilities apart from the physical disability.

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استبانة

تهدف هذه الاستبانة إلى جمع البيانات اللازمة لدراسة حول :

"مدى رضى المعاقين حركياً نحو التهيئة البيئية في المستشفيات الرئيسة في قطاع غزة"

أرجو التكرم بالتعاون في تعبئة هذه الاستبانة و التي هي جزء من دراستي للحصول على درجة الماجستير في علوم التأهيل.

كما سيكون لأرائكم بالغ الأثر في نجاح هذه الدراسة و ما يترتب عليها من تطوير بيئي ايجابي للمعاقين حركياً.

الاستبانة تحتوي على (خمسة) خيارات للإجابة فحاول اختيار مدى الرضى الذي يصف شعورك بدقة ، إذا وافقت على المشاركة في البحث فيبقى لك الحق في الانسحاب من البحث متى شئت.

علماً بأن إجابتك ستحترم و ستعامل بسرية تامة، و ستستخدم لأغراض البحث فقط، ولا داعي

لذكر اسمك

الجنس : ذكر ☐ أنثى ☐

العمر : 18 - 30 ☐ 30 فما فوق ☐

الحالة الاجتماعية : متزوج ☐ أعزب ☐ مطلق ☐ أرمل ☐

نوع الإصابة : وراثية ☐ مكتسبة ☐

تاريخ الإصابة : أقل من 6 شهور ☐ من 6 شهور إلى سنة ☐ سنة فما فوق ☐

الإعاقة الحركية : بدون جهاز مساعد ☐ بواسطة جهاز مساعد ☐ كرسي متحرك ☐

سبب الزيارة التي تقوم بها : عيادة خارجية ☐ أقسام داخلية ☐ عيادة خارجية و أقسام داخلية ☐

المستشفى التي يجري فيها الدراسة : الشفاء ☐ ناصر ☐ الأوروبي ☐

المحور الأول: البيئة الخارجية لمباني المستشفيات (خارج حدود المبنى)

أولا: المداخل الرئيسية الخارجية					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- أواجه صعوبات عند دخولي المدخل الرئيسي للمستشفى
					2- تتميز المستشفى بتعدد المداخل الرئيسية

ثانيا: المناطق المفتوحة					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- توجد حدائق خضراء داخل المستشفى
					2- أواجه صعوبة في حركتي في المناطق الخضراء
					3- أواجه صعوبة عند دخولي أو خروجي من الحدائق

ثالثا: مواقف السيارات					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- يوجد موقف سيارات خاص بالمعاقين
					2- أواجه صعوبة في وصولي من موقف السيارات إلى الأقسام

المحور الثاني: البيئة الداخلية (داخل حدود المبنى)

أولا: مداخل المباني الرئيسية للمبنى					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- أواجه صعوبات عند دخولي مداخل الأقسام الرئيسية
					2- أواجه صعوبات عند دخولي أو خروجي من مدخل العيادة الخارجية
					3- أواجه صعوبات عند دخولي أو خروجي من غرفة الفحص
					4- توجد منحدرات خاصة بالمعاقين في المستشفى
					5- أواجه صعوبات عند استخدام المنحدرات

ثانيا: عناصر الاتصال الأفقية					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- أواجه صعوبات أثناء حركتي داخل ممرات المستشفى
					2- سعة الممرات و عرضها غير كافية للحركة و الدوران

← اقلب الصفحة

ثالثاً : عناصر الاتصال الرأسية					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- توجد جوانب حماية حديدية على جانبي الأدراج
					2- أواجه صعوبات عند استخدامي الأدراج
					3- أواجه صعوبات في استخدام المصعد الكهربائي
					4- أواجه صعوبات في حركتي داخل المصعد

رابعاً : المرافق الصحية					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- أواجه صعوبات عند دخولي أو خروجي من الحمامات داخل المستشفى
					2- توجد جوانب حماية حديدية مساعدة داخل الحمامات
					3- أواجه صعوبات في الحركة أو الدوران داخل الحمامات

خامساً : أعمال التشطيب					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- كسوة الأرضيات غير ملائمة للحركة داخل مباني المستشفى
					2- أواجه خطورة من التزحلق عند الحركة على أرضيات المستشفى

سادساً : الفتحات و الأبواب					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
					1- أواجه صعوبات في سعة أو عرض الأبواب عند الدخول والخروج
					2- أواجه صعوبات عند فتح أو غلق الأبواب

سؤال:كم مرة تتردد/ي على المستشفى شهرياً.....مرة/مرات

شكراً لتعاونكم

Questionnaire

This Questionnaire aims to collect necessary data for a research about:

"SATISFACTORY ENVIRONMENTAL ADAPTATION FOR THE PHYSICALLY DISABLED IN MAIN GENERAL HOSPITALS OF GAZA STRIP"

Seeking your generous cooperation in filling up this Questionnaire which is a part of my research study of master degree in rehabilitation science .

your opinion would be very effective towards successful study which will enhance a positive environmental development for the physically disabled in Gaza strip.

The Questionnaire contains five choices of answers .

So please try to choose the accurate one. If you accepted to join the study you still have the right to withdraw from the study at any time .

However : your answers will be respected and confidentially taking as it will be used for the study purposes only.

You don't have to write your name .

Gender **MALE** **FEMALE**

AGE **18-30 YEAR** **30 AND ABOVE**

MARITAL STATUS
 MARRIED **SINGLE** **DIVORCED** **WIDOW**

TYPE OF DISABILITY **CONGENITAL** **ACQUIRED**

AGE OF DISABILITY

LESS THAN 6 MONTHS **6 MONTHS TO 1 YEAR** **1 YEAR AND ABOVE**

AMBULATION DEFICT

WITHOUT ASSISTIVE DEVICE **WITH ASSISTIVE DEVICE** **WHEELCHAIR**

REASON OF VISIT **OUT-PATIENTS** **IN-PATIENTS** **IN & OUT-PATIENTS**

THE STUDDED HOSPITAL **AL-SHEFA** **NASER** **EUROPEAN**

First part: The outer space of hospital buildings

First : Hospital main entrances					
	Totally agree	agree	neutral	disagree	Totally disagree
Face difficulties when entering the hospital main entrance					
There is more than one main entrance					

Second : Gardens & open spaces					
	Totally agree	agree	neutral	disagree	Totally disagree
There are gardens inside the hospital					
Face difficulties when moving inside the garden					
Face difficulties when getting-in & out the garden					

Third : Car parking					
	Totally agree	agree	neutral	disagree	Totally disagree
There is disabled car parking inside the hospital					
Face difficulties reaching the hospital from the parking					

Second part : The inside environment of buildings

First : Main buildings entrances					
	Totally agree	agree	neutral	disagree	Totally disagree
Face difficulties when entering the wards main entrances					
Face difficulties when getting-in& out the out-patient room					
Face difficulties when getting-in & out the inspection room					
There is special disabled ramps in the hospital					
Face difficulties when using the ramps					

Second : Horizontal accessibility					
	Totally agree	agree	neutral	disagree	Totally disagree
Face difficulties when moving inside the corridors					
The corridors spaces is insufficient for turnings and moving					

Third : Vertical accessibility					
	Totally agree	agree	neutral	disagree	Totally disagree
There is protective side rails at the stairs					
Face difficulties when using the stairs					
Face difficulties when using the elevator					
Face difficulties when moving & turning inside the elevator					

Forth : Toilets					
	Totally agree	agree	neutral	disagree	Totally disagree
Face difficulties when getting-in & out the toilets					
There is helping side rails facilities at the toilets					
Face difficulties when turnings and moving at the toilets					

Fifth : Finishing work					
	Totally agree	agree	neutral	disagree	Totally disagree
Floors coverage unsuitable for movement at the hospital					
Face threat of sliding when moving at hospital floors					

Sixth : Doors and Spaces					
	Totally agree	agree	neutral	disagree	Totally disagree
Face difficulties when getting-in & out the doors					
Face difficulties when opening & closing the doors					

Q: How many times do you visit the hospital.....(monthly)